

Access DB# 142521**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: Carleton Saelet Examiner #: 79493 Date: 1/13/05
Art Unit: 3713 Phone Number 301-222-4443 Serial Number: 091700, 316
Mail Box and Bldg/Room Location: 571 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: 5/1/99

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

missile simulatorTesting Guidance system of an aircraft
missileSee claim 1

Rec'd 1-13-05

12:05 p

J.S.

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>Jane Harrigan</u>	NA Sequence (#) _____	STN _____
Searcher Phone #: <u>2-3529</u>	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: _____	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____



STIC Search Report

EIC 3700

STIC Database Tracking Number: 142521

TO: Cameron Saadat
Location: RND 6a48
Art Unit: 3713

Case Serial Number: 09/700316

From: Jeanne Horrigan
Location: RND 8A34
Phone: 571-272-3529

jeanne.horrigan@uspto.gov

Search Notes

Attached are the search results for the method for simulating testing of a missile.

Also attached is a search feedback form. Completion of the form is voluntary. Your completing this form would help us improve our search services.

I hope the attached information is useful. Please feel free to contact me if you have any questions or need additional searching on this application.



STIC Search Results Feedback Form

EIC 3700

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

John Sims, EIC 3700 Team Leader
RND 8B35, Phone 2-3507

Voluntary Results Feedback Form

➤ I am an examiner in Workgroup: Example: 3730

➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC/EIC3700 RND:8B31



Serial 09/700316

January 25, 2005

File 350:Derwent WPIX 1963-2005/UD,UM &UP=200504

(c) 2005 Thomson Derwent

File 348:EUROPEAN PATENTS 1978-2005/Jan W02

(c) 2005 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20050113,UT=20050106

(c) 2005 WIPO/Univentio

Set Items Description

S1 2 AU='OHBERG LARS OLOF' OR AU='OHBERG LARS-OLOF'

S2 7 AU='HEDMAN B' OR AU='HEDMAN BERNT OVE' OR AU='HEDMAN BERNT-
-OVE'

S3 7 S1:S2

3/26,TI/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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014081080

WPI Acc No: 2001-565294/200163

Method of reducing interrupt load in a multi-processor system where two
processors share memory by interrupting only when a read operation is to
be performed and the memory is empty

3/26,TI/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

013387437

WPI Acc No: 2000-559375/200052

Device for applying ophthalmic solutions to eyes comprises a sealed bag
made of a barrier material and provided with a valve (integrated in a
fastening collar) for an ophthalmic solution

3/26,TI/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

009340438

WPI Acc No: 1993-033901/199304

Building component - comprises outer side with consecutive number of
plates and corresp. inner side with hollow space between two sides

3/26,TI/5 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

004324353

WPI Acc No: 1985-151231/198525

Base unit for stone crusher - has wear inserts with intervening channels
and straight tracks in crushing surface

3/7/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

Serial 09/700316

January 25, 2005

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012867591 **Image available**

WPI Acc No: 2000-039424/200003

Simulation method for aircraft missiles during testing of aircraft system

Patent Assignee: SAAB AB (SAAB)

Inventor: HEDMAN B ; OEHLBERG L

Number of Countries: 020 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9960326	A1	19991125	WO 99SE751	A	19990505	200003	B
SE 9801736	A	19991116	SE 981736	A	19980515	200009	
SE 513330	C2	20000828	SE 981736	A	19980515	200050	
EP 1078214	A1	20010228	EP 99927033	A	19990505	200113	
			WO 99SE751	A	19990505		
EP 1078214	B1	20040128	EP 99927033	A	19990505	200410	
			WO 99SE751	A	19990505		
DE 69914474	E	20040304	DE 99614474	A	19990505	200419	
			EP 99927033	A	19990505		
			WO 99SE751	A	19990505		
ES 2214858	T3	20040916	EP 99927033	A	19990505	200462	

Priority Applications (No Type Date): SE 981736 A 19980515

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9960326 A1 E 14 F41G-007/00

Designated States (National): DE GB US

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU

MC NL PT SE

SE 513330 C2 F41G-007/00

EP 1078214 A1 E F41G-007/00 Based on patent WO 9960326

Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU

MC NL PT SE

EP 1078214 B1 E F41G-007/00 Based on patent WO 9960326

Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU

MC NL PT SE

DE 69914474 E F41G-007/00 Based on patent EP 1078214

Based on patent WO 9960326

ES 2214858 T3 F41G-007/00 Based on patent EP 1078214

Abstract (Basic): WO 9960326 A1

NOVELTY - The missile simulator measures the control loop's trouble signal, generates an actual value for position of the target seeker and outputs the actual value to weapon system. Based on an output value, a new trouble signal is then calculated.

DETAILED DESCRIPTION - The missile simulator used consists of a weapon system (1), where the missile is controlled by the system by a trouble signal (6) generated in a control loop. Based on this signal, a target seeker is positioned and the positional information of target seeker is sent to system via actual value signal (8).

USE - For missile simulation during testing of an aircraft system.

ADVANTAGE - Permits continuous measurement of the command signal in the aircraft system.

DESCRIPTION OF DRAWING(S) - The figure shows the schematic diagram of the weapon system of aircraft.

Weapon system (1)

Serial 09/700316

January 25, 2005

Trouble signal (6)
 Actual value signal (8)
 pp; 14 DwgNo 1/2
 Derwent Class: Q79; W07
 International Patent Class (Main): F41G-007/00

3/3,AB/6 (Item 1 from file: 348)
 DIALOG(R)File 348:EUROPEAN PATENTS
 (c) 2005 European Patent Office. All rts. reserv.

01112200

MISSILE SIMULATOR

FLUGKORPERSIMULATOR

SIMULATEUR DE MISSILE

PATENT ASSIGNEE:

SAAB AKTIEBOLAG, (2171180), , 581 88 Linkoping, (SE), (Proprietor
 designated states: all)

INVENTOR:

OHBERG, Lars-Olof , Vindarnas vag 9, S-582 72 Linkoping, (SE)

HEDMAN, Bernt-Ove , Rattaregatan 50, S-583 33 Linkoping, (SE)

PATENT (CC, No, Kind, Date): EP 1078214 A1 010228 (Basic)

EP 1078214 B1 040128

WO 1999060326 991125

APPLICATION (CC, No, Date): EP 99927033 990505; WO 99SE751 990505

PRIORITY (CC, No, Date): SE 981736 980515

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU;

MC; NL; PT; SE

INTERNATIONAL PATENT CLASS: F41G-007/00

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; Swedish

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200405	399
CLAIMS B	(German)	200405	348
CLAIMS B	(French)	200405	415
SPEC B	(English)	200405	1725
Total word count - document A			0
Total word count - document B			2887
Total word count - documents A + B			2887

3/3,AB/7 (Item 1 from file: 349)
 DIALOG(R)File 349:PCT FULLTEXT
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00528974

ROBOT SIMULATOR

SIMULATEUR DE MISSILE

Patent Applicant/Assignee:

SAAB AB,

OHBERG Lars-Olof,

HEDMAN Bernt-Ove,

Inventor(s):

OHBERG Lars-Olof ,

HEDMAN Bernt-Ove

Patent and Priority Information (Country, Number, Date):

Patent: WO 9960326 A1 19991125

Application: WO 99SE751 19990505 (PCT/WO SE9900751)

Priority Application: SE 981736 19980515

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

DE GB US AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 2499

English Abstract

A method for simulating an actual missile, by means of a missile simulator, aircraft system which comprises a weapons system (1), where the missile is controlled from the weapons system (1) by a error signal (6) in a control loop by means of the said error signal (6) positioning a target seeker in the missile and through the sending back of the target seeker's position to the weapons system via an actual value signal (8), where a) the target seeker in the missile is commanded by the weapons system (1) to adopt a predetermined position, b) the missile simulator measures the control loop's error signal (6), generates an actual value for the position of the target seeker and sends the actual value (8) to the weapons system (1), c) the weapons system (1) calculates a new error signal (6) for the control loop and where d) steps b to c are repeated during the test. By using the method, an actual missile is not needed during the testing.

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January 25, 2005

File 2:INSPEC 1969-2005/Jan W2
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File 8:EI Compendex(R) 1970-2005/Jan W2
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File 6:NTIS 1964-2005/Jan W3
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File 34:SciSearch(R) Cited Ref Sci 1990-2005/Jan W3
(c) 2005 Inst for Sci Info

File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
(c) 1998 Inst for Sci Info

Set	Items	Description
S1	18	AU='OHBERG L'
S2	196	AU='HEDMAN B'
S3	176	AU='HEDMAN, B.' OR AU='HEDMAN, B. (EDITOR)'
S4	2029121	SIMULAT?
S5	14	S1:S3 AND S4
S6	9	RD (unique items)
S7	43175	MISSILE?
S8	0	S1:S3 AND S7

6/6/1 (Item 1 from file: 2)

5509721 INSPEC Abstract Number: A9707-2940-099, B9704-7420-134

Title: Simulation and modelling of a new silicon X-ray drift detector
design for synchrotron radiation applications

Publication Date: 1 Oct. 1996

Copyright 1997, FIZ Karlsruhe

6/6/2 (Item 2 from file: 2)

4432083 INSPEC Abstract Number: A9315-2940-023, B9308-7450-009

Title: 20 element HgI/sub 2/ energy dispersive X-ray array detector system

Publication Date: 1991

6/6/3 (Item 3 from file: 2)

02519482 INSPEC Abstract Number: A85102606

Title: The EXAFS of disordered systems and the cumulant expansion

Publication Date: 1984

6/6/4 (Item 1 from file: 34)

12994963 Genuine Article#: 840GW Number of References: 34

Title: Determination by X-ray absorption spectroscopy of the Fe-Fe
separation in the oxidized form of the hydroxylase of methane
monooxygenase alone and in the presence of MMOD (ABSTRACT AVAILABLE)

Publication date: 20040726

6/6/5 (Item 2 from file: 34)

12156086 Genuine Article#: 733FY Number of References: 67

Title: L-edge X-ray absorption spectroscopy of non-heme iron sites:

Experimental determination of differential orbital covalency (ABSTRACT
AVAILABLE)

Publication date: 20031022

Serial 09/700316

January 25, 2005

6/6/6 (Item 3 from file: 34)

09178305 Genuine Article#: 375EJ Number of References: 33

Title: X-ray spectroscopy of enzyme active site analogues and related molecules: Bis(dithiolene)molybdenum(IV) and -tungsten(IV,VI) complexes with variant terminal ligands (ABSTRACT AVAILABLE)

Publication date: 20001113

6/6/7 (Item 4 from file: 34)

08198703 Genuine Article#: 256HL Number of References: 49

Title: An X-ray spectroscopic investigation of bis(dithiolene)molybdenum(IV,V,VI) and -tungsten(IV,V,VI) complexes: Symmetrized structural representations of the active sites of molybdoenzymes in the DMSO reductase family and of tungstoenzymes in the AOR and F(M)DH families (ABSTRACT AVAILABLE)

Publication date: 19991110

6/6/8 (Item 5 from file: 34)

03778841 Genuine Article#: QF536 Number of References: 69

Title: GNXAS, A MULTIPLE-SCATTERING APPROACH TO EXAFS ANALYSIS - METHODOLOGY AND APPLICATIONS TO IRON COMPLEXES (Abstract Available)

6/6/9 (Item 6 from file: 34)

00916249 Genuine Article#: FE866 Number of References: 21

Title: INCLUSION OF A SMALL MOLECULE IN A BIG CAGE - PREPARATION AND STRUCTURE OF CATENA- [CATENA- (ALPHA,OMEGA-DIAMINOCTANE) CADMIUM-MU-TETRACYANONICKELATE]-TOLUENE(1/1) (Abstract Available)

File 2:INSPEC 1969-2005/Jan W2
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File 34:SciSearch(R) Cited Ref Sci 1990-2005/Jan W3
(c) 2005 Inst for Sci Info
File 94:JICST-EPlus 1985-2004/Dec W2
(c)2005 Japan Science and Tech Corp(JST)
File 104:AeroBase 1999-2005/Jan
(c) 2005 Contains copyrighted material

Set	Items	Description
S1	67	MISSILE? ? AND SIMULAT? AND TARGET(3N)SEEK???
S2	7988	VALUE AND TROUBLE
S3	0	S1 AND S2
S4	195	COMMAND AND ACTUAL AND POSITION
S5	0	S1 AND S4
S6	664102	POSITION
S7	19	S1 AND S6
S8	16	RD (unique items)
S9	5	S8/2000:2005
S10	11	S8 NOT S9

10/6/1 (Item 1 from file: 2)
6197198 INSPEC Abstract Number: B1999-05-7620-010, C1999-05-7460-008
Title: History of flight motion simulators used for hardware-in-the-loop testing of missile systems
Publication Date: 1998
Copyright 1999, IEE

10/6/2 (Item 2 from file: 2)
5878510 INSPEC Abstract Number: B9805-7950-009, C9805-3375-008
Title: An efficient counter-countermeasure of the spinning concentric annular ring reticle seeker
Publication Date: 1997
Copyright 1998, IEE

10/6/3 (Item 3 from file: 2)
5758401 INSPEC Abstract Number: B9801-7900-001
Title: Simulation of the spinning concentric annular ring reticle seeker and an efficient counter-countermeasure
Publication Date: Nov. 1997
Copyright 1997, IEE

10/6/4 (Item 4 from file: 2)
4687522 INSPEC Abstract Number: B9407-7950-007, C9407-7460-020
Title: A microwave and millimeter-wave simulation laboratory
Publication Date: 1993

10/6/5 (Item 5 from file: 2)

ASRC Searcher: Jeanne Horrigan
Serial 09/700316
January 25, 2005

8

03380005 INSPEC Abstract Number: B89040606, C89035833
Title: Cost effective simulation for millimeter wave guidance systems
Report Title: Guidance and control systems simulation and validation techniques
Publication Date: July 1988

10/6/6 (Item 1 from file: 6)
2098956 NTIS Accession Number: ADA353726/XAB
Methodology for the Analysis of Obscurant Attenuation Effects on Seeker
Target Acquisition Performance Using Modeling and Simulation
(Final rept)
Aug 98

10/6/7 (Item 2 from file: 6)
1730021 NTIS Accession Number: N93-22030/9
Radar Seeker Based Autonomous Navigation Update System Using Topography
Feature Matching Techniques
cNov 92

10/6/8 (Item 3 from file: 6)
1367203 NTIS Accession Number: AD-A190 010/9
Effect of Friction and Control Parameters on the Tracking Accuracy of a
Target Seeker
(Master's thesis)
Dec 87

10/6/9 (Item 1 from file: 8)
04101365
Title: Integrated six-degree-of-freedom missile / target / seeker model
Conference Title: Acquisition, Tracking, and Pointing VIII
Publication Year: 1994

10/6/10 (Item 2 from file: 8)
03675944
Title: Simulation of reticle seekers by using an image-processing
system
Conference Title: Infrared Technology XVIII
Publication Year: 1993

10/6/11 (Item 1 from file: 34)
06269807 Genuine Article#: YF405 Number of References: 15
Title: Simulation of the spinning concentric annular ring reticle seeker
and an efficient counter-countermeasure (ABSTRACT AVAILABLE)
Publication date: 19971100

Serial 09/700316

January 25, 2005

File 2:INSPEC 1969-2005/Jan W3
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File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
(c) 2002 The Gale Group

File 34:SciSearch(R) Cited Ref Sci 1990-2005/Jan W3
(c) 2005 Inst for Sci Info

File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
(c) 1998 Inst for Sci Info

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(c)2005 Japan Science and Tech Corp(JST)

File 95:TEME-Technology & Management 1989-2004/Jun W1
(c) 2004 FIZ TECHNIK

File 99:Wilson Appl. Sci & Tech Abs 1983-2004/Nov
(c) 2004 The HW Wilson Co.

File 35:Dissertation Abs Online 1861-2004/Dec
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File 65:Inside Conferences 1993-2005/Jan W4
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File 144:Pascal 1973-2005/Jan W2
(c) 2005 INIST/CNRS

Set	Items	Description
S1	71315	MISSILE? ? OR WEAPON() SYSTEM? ?
S2	3149260	SIMULAT?
S3	386228	AIRCRAFT OR AIRPLANE? ? OR FIGHTER() (PLANE? ? OR JET? ?) OR BOMBER? ? OR AIR(2N) LAUNCH???
S4	13988	GUIDANCE() (SIGNAL? ? OR SYSTEM? ?)
S5	39529	(FEEDBACK OR CONTROL) () LOOP? ?
S6	50427	(TROUBLE OR CONTROL) (1W) (SIGNAL? ? OR POSITION? ? OR VALUE- S? ?)
S7	2017	(COMMAND) (1W) (SIGNAL? ? OR VALUE? ? OR POSITION? ?)
S8	11697	ACTUAL(1W) (SIGNAL? ? OR VALUE? ? OR POSITION? ?)
S9	2024	S1 AND S2 AND S3
S10	50	S4 AND S9
S11	7	(S5 OR S6 OR S7:S8) AND S9
S12	5	RD (unique items)
S13	5	RD (unique items)
S14	49	S10 NOT S11
S15	41	RD (unique items)
S16	11	S15/2000:2005
S17	30	S15 NOT S16
S18	136	TARGET() SEEK???
S19	30	Sort S17/ALL/PY,A
S20	5831564	TEST???
S21	3	S9 AND S18 AND S20
S22	2	S21 NOT (S11 OR S14) [too recent]
S23	10	S2 AND S20 AND S18
S24	7	S23 NOT (S11 OR S14 OR S21)
S25	7	RD (unique items)

12/7,K/2 (Item 2 from file: 2)

DIALOG(R) File 2:INSPEC

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5878716 INSPEC Abstract Number: B9805-7990-008, C9805-3360L-034

Title: Adaptive **simulated** pilot

Author(s): Stroud, P.D.

Author Affiliation: Safety Assessment Div., Los Alamos Nat. Lab., NM, USA

Journal: Journal of **Guidance, Control, and Dynamics** vol.21, no.2 p.

352-4

Publisher: AIAA,

Publication Date: March-April 1998 Country of Publication: USA

CODEN: JGCDDT ISSN: 0731-5090

SICI: 0731-5090(199803/04)21:2L:352:ASP;1-2

Material Identity Number: C746-98002

U.S. Copyright Clearance Center Code: 0731-5090/98/\$2.00+.50

Language: English Document Type: Journal Paper (JP)

Treatment: Practical (P)

Abstract: The implementation of military **aircraft** pilot behavior with a parameterized set of rules is seen to be an effective way to represent a vast array of alternative behaviors. It can easily be set to mimic the behavior of human operators over a limited domain. In addition, any knowledge obtained during the evolutionary adaptation can be readily extracted from the new **control** parameter **values**. The genetic algorithm is seen to be an effective method for evolving a population of trial **control** parameters in a continuous search for better-adapted behaviors in a complex, dynamic environment. The use of an internal **simulation** is seen to be a practical way to represent knowledge about the external world. The adaptive pilot model was able to generate behaviors that were significantly better than those of preprogrammed models. Like the human pilot it emulates, the pilot model can adapt its behavior when faced with novel threats and, thus, significantly reduce the fraction of **missiles** that leak through. (5 Refs)

Subfile: B C

Copyright 1998, IEE

...Descriptors: **aircraft control...**

...digital **simulation** ; ...

...military **aircraft**

Identifiers: adaptive **simulated** pilot...

...military **aircraft** pilot behavior...

...internal **simulation** ; ...

... **missiles**

12/7,K/3 (Item 3 from file: 2)

DIALOG(R) File 2:INSPEC

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5844311 INSPEC Abstract Number: B9804-7950-021, C9804-7460-009

Title: The evolution of the Foxtrot **simulator 's** gimbal control system

Author(s): Maraviglia, C.G.; Moser, R.J.

Author Affiliation: Adv. Tech. Branch, Naval Res. Lab., Washington, DC, USA

Journal: Proceedings of the SPIE - The International Society for Optical

Serial 09/700316

January 25, 2005

Engineering Conference Title: Proc. SPIE - Int. Soc. Opt. Eng. (USA)
vol.3086 p.61-71

Publisher: SPIE-Int. Soc. Opt. Eng,

Publication Date: 1997 Country of Publication: USA

CODEN: PSISDG ISSN: 0277-786X

SICI: 0277-786X(1997)3086L:61:EFSG;1-W

Material Identity Number: C574-97192

U.S. Copyright Clearance Center Code: 0277-786X/97/\$10.00

Conference Title: Acquisition, Tracking, and Pointing XI

Conference Sponsor: SPIE

Conference Date: 23-24 April 1997 Conference Location: Orlando, FL,
USA

Language: English Document Type: Conference Paper (PA); Journal Paper
(JP)

Treatment: Applications (A); Practical (P); Experimental (X)

Abstract: The Foxtrot **System** is an infra-red (IR) **simulator** that is mounted in a pod under the wing of a **test aircraft**. It uses a gimbal **control system** that points and stabilizes an IR camera. The video **signal** from this camera is sent to an image processor that analyzes the **signal** in order to detect features of interest in a scene and then make tracking decisions for the gimbal **system**. The gimbal **system** has evolved from an analog linear prototype **system** controlled by an eight (8) bit microprocessor to the present VME bus based **system** (allows the migration of **control loop** functions from the hardware to the software domain) that is **controlled** by a real time operating **system**. Starting with the premise that some key **systems** components are now and are expected to remain analog in nature (i.e. Inertial Gyro and Servo Motor), this paper discusses the evolution of Foxtrot's gimbal **system** architecture that is taking place in order to accommodate both these required analog interfaces and advances in software and hardware technology (i.e. improved compilers, real time operating **systems**, improved processors, enhanced image processing hardware). Discussion then focuses on improvements that can be made to the **system** by mathematically modeling it on a software **simulator** such as MATLAB. The response of the **system** can then be described as a difference equation and the emerging capabilities of Digital **Signal Processing** (DSP) can be utilized to improve **system** performance. (0 Refs)

Subfile: B C

Copyright 1998, IEE

Descriptors: aerospace **simulation** ;digital **simulation** ; **missiles** ;Identifiers: Foxtrot **simulator** ;infrared **simulator** ;test **aircraft** ;guided **missile simulation**

12/7,K/4 (Item 1 from file: 6)

DIALOG(R)File 6:NTIS

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Serial 09/700316

January 25, 2005

1929915 NTIS Accession Number: N96-13418/4

Vertical Channel Design Considerations

Ausman, J. S.

Litton **Systems**, Inc., Woodland Hills, CA. **Guidance and Control Systems** Div.

Corp. Source Codes: 016260002; LW533377

cJun 95 16p

Languages: English

Journal Announcement: GRAI9606; STAR3402

In AGARD, Aerospace Navigation **Systems** p 312-327.

NTIS Prices: (Order as N96-13404, PC A18/MF A04)

Country of Publication: United States

The vertical channel of an inertial **system** is unstable. This instability is caused by the gravity compensation fed back to the vertical accelerometer output. The gravity compensation, computed as a function of altitude after doubly integrating the output of that accelerometer, creates an unstable, positive **feedback loop**. The time constant of this instability is about 560 seconds near the earth's surface. For ballistic **missiles** and rockets this does not pose a problem because the **guidance** is completed before the instability becomes serious. For **aircraft systems**, however, one must augment the inertial measurements, typically with barometric altimeter information, in order to stabilize the vertical inertial channel. Earliest mechanizations of the baro-inertial **loop** employed second-order **feedback** with constant gains. The next step was to add integral **feedback** in order to bias the vertical accelerometer, thus creating a third-order **system**. Widnall and Sinha investigated the third-order **loop** to find the optimum set of fixed gains. Not surprisingly, they found that the optimum set of gains depended on the **values** assumed for the noise characteristics of the accelerometer and the barometric altimeter. Because the noise magnitudes will vary as a function of the **aircraft** 's flight regime, the baro-inertial **feedback** gains should not be constant, but should also vary. Litton first mechanized a third-order variable gain baro-inertial **loop** in CLASS, in all-weather close air support **system**, successfully demonstrated in 1972. They gradually improved upon that basic design over the years as successive **systems**, principally ARIS, uncovered more and more barometric altitude error characteristics which had to be accommodated. The culmination of this evolutionary development is the baro-inertial **loop** currently mechanized in the LN-93 and LN-94 **systems** for the USAF Standard RLG INU. Following a discussion of barometric and inertial errors, we will take a detailed look at the LN-93/94 conventional vertical channel mechanization, the reasons behind the **loop** design, and some **simulation** results illustrating the **loop** performance when subjected to certain flight maneuvers and barometric errors.

...Descriptors: navigation; *Kalman filters; *Positive **feedback**; Advanced range instrumentation ship; Atmospheric pressure; Bias; Errors; Noise measurement; **Simulation**; Time constant

12/7,K/5 (Item 2 from file: 6)

DIALOG(R)File 6:NTIS

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0363822 NTIS Accession Number: AD-754 231/XAB

Test Results: PLRACTA (**Position** Location Reporting and **Control** Tactical **Aircraft**) Remote Station at Army Nike **Missile** Site
Zeichner, M. L.

Mitre Corp Bedford Mass

Corp. Source Codes: 235050

Report No.: MTR-2478; ESD-TR-72-401

Dec 72 34p

Journal Announcement: GRAI7305

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NTIS Prices: PC A03/MF A01

Contract No.: F19628-73-C-0001; AF-517A

The PLRACTA (**Position Location Reporting and Control Tactical Aircraft**) Mobile Remote Station was driven to the Army Nike **Missile** Site in Lincoln, Mass. and interfaced with the site acquisition radar. **Tests** were conducted to demonstrate how PLRACTA information could enhance the identification process and provide early warning information. The document summarizes the results of these **tests**. (Author)

Descriptors: ***Antimissile** defense **systems**; *Acquisition radar; ***Antiaircraft** defense **systems**; Compatibility; Identification **systems**; Early warning **systems**; **Simulators** ; **Command + control systems**; **Position** finding; **Air control** centers; Data processing **systems**; Interfaces

Identifiers: PLRACTA(**Position Location Reporting And Control Tactical Aircraft**); **Position** location reporting and **control tactical aircraft** ; NTISAF

19/6/1 (Item 1 from file: 6)

0114564 NTIS Accession Number: AD-647 975/XAB

Miscom: An Individual **Missile Weapon System** Computer Cost Model

Feb 67

19/6/3 (Item 3 from file: 6)

0648809 NTIS Accession Number: AD-916 996/2/XAB

Flight **Test** Performance of PRN Navigation Receivers. Volume I. Executive Summary and Analysis of Flight **Test** Navigation Performance

(Rept. for Jan 71-Jul 73)

16 Jan 74

19/6/5 (Item 5 from file: 6)

0863385 NTIS Accession Number: AD-B019 978/6/XAB

Digital Guided **Weapons** Technology. Volume III. Programmable Digital Autopilot

(Final rept. Aug 74-Nov 76)

Nov 76

19/6/7 (Item 7 from file: 6)

0631412 NTIS Accession Number: AD-A039 338/9/XAB

A Kalman Filter Application to the Advanced Tactical Inertial **Guidance System** of the **Air - Launched** Low Volume Ramjet Cruise **Missile** (Master's thesis)

Dec 76

19/6/9 (Item 9 from file: 6)

0535296 NTIS Accession Number: NTIS/PS-76/0042/2/XAB

Aerospace Computer **Systems**. Part 1. Avionic Applications (A Bibliography with Abstracts)

(Rept. for 1964-Jan 76)

Jan 76

19/6/10 (Item 10 from file: 6)
0730503 NTIS Accession Number: AD-A059 574/4/XAB
Data Acquisition for Laser **Guidance System Simulation**
(Technical rept)
29 Jun 78

19/6/11 (Item 11 from file: 2)
01460213 INSPEC Abstract Number: B80007384, C80006685
Title: Unique environmental **test** facilities at Orlando Division of Martin
Marietta Aerospace
Publication Date: March-April 1979

19/6/12 (Item 12 from file: 2)
01397863 INSPEC Abstract Number: B79040654
Title: **Weapons** operator interaction with a supersonic tactical **missile**
during terminal homing
Publication Date: 1979

19/6/16 (Item 16 from file: 6)
1477070 NTIS Accession Number: AD-P005 820/6
Development of Mission-Specific Advanced Inertially-Based Avionics
Systems
4 Jul 89

19/6/21 (Item 21 from file: 6)
1836677 NTIS Accession Number: PB94-218161
Expert **System** for Evading Strategy **Simulation**
(Technical rept)
1993

19/6/22 (Item 22 from file: 99)
1122602 H.W. WILSON RECORD NUMBER: BAST93054752
Pursuit-evasion geometry analysis between two **missiles** and an **aircraft**
19930900

19/6/23 (Item 23 from file: 8)
04194670
Title: Mission management **system** architecture for cooperating **air**
vehicles
Conference Title: Proceedings of the IEEE 1994 National Aerospace and
Electronics Conference (NAECON 1994). Part 1 (of 2)
Publication Year: 1994

19/6/24 (Item 24 from file: 8)
04168018
Title: Differential games and symbolic programming to calculate a
guaranteed **aircraft** evasion in modern aerial duels
Conference Title: Proceedings of the 33rd IEEE Conference on Decision and
Control. Part 4 (of 4)
Publication Year: 1994

19/6/25 (Item 25 from file: 8)
03837202
Title: **Missile guidance** algorithm against high-barrel roll maneuvers
Publication Year: 1994

19/6/26 (Item 26 from file: 99)
1140349 H.W. WILSON RECORD NUMBER: BAST94008897
Title: **Missile guidance** algorithm against high-g barrel roll maneuvers
19940100

19/6/27 (Item 27 from file: 94)
03055656 JICST ACCESSION NUMBER: 97A0160778 FILE SEGMENT: JICST-E
Application of a Fuzzy **Control** to **Guidance** Force Generator for an **Aircraft**
. , 1995

19/6/28 (Item 28 from file: 2)
5444312 INSPEC Abstract Number: B9701-7900-002, C9701-3375-008
Title: Relative and differential GPS
Publication Date: 1996
Copyright 1996, IEE

19/6/29 (Item 29 from file: 8)
05660977
Title: New all-round attack strategy based on over-the-shoulder **launch**
Publication Year: 1999

19/7,K/2 (Item 2 from file: 6)
DIALOG(R)File 6:NTIS
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0391379 NTIS Accession Number: AD-763 373/XAB
Transactions of the First NWC Symposium on the Application of Control
Theory to Modern Weapons Systems, 9-10 May 1973
(Technical publication)
Naval Weapons Center China Lake Calif
Corp. Source Codes: 403019
Report No.: NWC-TP-5522
Jun 73 496p
Document Type: Conference proceeding
Journal Announcement: GRAI7317
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customers); (703)605-6000 (other countries); fax at (703)321-8547; and
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Springfield, VA, 22161, USA.

NTIS Prices: PC A21/MF A01
A partial listing of the 27 papers presented at the first Naval Weapons
Center on the application of **control** theory to modern **weapons systems** is as
follows: Modern **control** theory: practical importance and present impotence;
Evaluation of homing **guidance** laws using the covariance analysis describing

Serial 09/700316

January 25, 2005

function technique; An application of state estimation via suboptimal kalman filters; The application of stochastic aggregation to an inertial **guidance system**; Pointing and tracking **system** for optical communication; **The analysis and simulation of a fire control technique for launching air-to-air missiles**; A modern air defense **system simulation**.

Descriptors: *Weapon **systems**; *Adaptive **control systems**; Inertial navigation; Inertial **guidance**; Radar tracking; Antiaircraft defense **systems**; Antimissile defense **systems**; Fire **control systems**; Gun sights; Light communication **systems**; Stochastic processes; Algorithms; **Simulation**; Symposia

Identifiers: *Control theory; Automatic **control**; Kalman filters; Computerized **simulation**; NTISN

19/7,K/4 (Item 4 from file: 6)

DIALOG(R) File 6:NTIS

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0863387 NTIS Accession Number: AD-B020 488/3/XAB

Digital Guided Weapons Technology. Volume II. System Simulations

(Final rept. Aug 74-Nov 76)

Woolley, R. ; Hoolko, R. ; Mouton, J. ; Sobek, D. ; Watson, F.

Hughes **Aircraft Co.**, Canoga Park, CA. **Missile Systems Div.**

Corp. Source Codes: 014518002; 403848

Report No.: HAC-REF-D3003; AFATL-TR-76-132-VOL-2

Nov 76 162p

Languages: English

Journal Announcement: GRAI8105

See also Volume 3, AD-B019 978L.

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NTIS Prices: PC A08/MF A01

Country of Publication: United States

Contract No.: F08635-75-C-0014; 670B; 01

This report describes **simulations** and field **tests** performed with the two digital processing **systems**, DP1 and DP2, which were built on the Digital Guided **Weapons Technology Program**. The DP1 **system** was integrated with a GFE Inertial Measurement Unit (IMU); and, after **testing** at Hughes **Aircraft Company**, it was integrated with the Completely Integrated Reference Instrumentation **System** (CIRIS) at the central Inertial **Guidance Test Facility** (CIGTF), Holloman **Air Force Base**, New Mexico. Performance **tests** were carried out by the **Air Force** in the laboratory, in a van, and in an **aircraft**. Performance in navigation accuracy relative to CIRIS was determined. The DP2 **system** was integrated into a semiphysical hybrid computer **simulation** at the contractor facility. The **simulation** performed was that of a long-range **air-to-surface weapon** which uses an aided inertial **guidance system** for midcourse **guidance**. A **simulated LORAN** sensor was used to update the inertial navigation subsystem. The DP2 software included Management and Executive Software and the following computational elements: LORAN processing, alignment filter midcourse **guidance law**, navigation, and flight **control**. (Author)

Descriptors: *Air to surface **missiles**; *Guided bombs; *Midcourse **guidance**; *Autopilots; **Guidance computers**; Guided **missile computers**;

Alignment; Hybrid **simulation** ; Inertial measurement units; Accuracy; Loran
; Flight **control systems**; Interfaces; Modular construction

19/7,K/6 (Item 6 from file: 6)
DIALOG(R)File 6:NTIS
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0662444 NTIS Accession Number: AD-B010 399/4/XAB

Modular Digital Missile Guidance, Phase II

(Technical rept. 20 Jan-19 Nov 75)

Hall, B. A. ; Langley, F. J. ; Casey, L. J. ; Cullinane, T. J. ;
Fitzgerald, R. J.

Raytheon Co Bedford Mass **Missile Systems Div**

Corp. Source Codes: 297620

Report No.: BR-8738; ONR-CR233-052-2

28 Jan 76 451p

Journal Announcement: GRAI7801

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NTIS Prices: PC A20/MF A01

Contract No.: N00014-75-C-0549

This report presents the results of the second phase of a study to
investigate the feasibility of a modular digital **guidance system** for
Navy **air-to-air missile** applications. The studies involved the analysis
of functions for digital implementation in all classes of **air-to-air**
missiles and the derivation of computer requirements in terms of
throughput memory, architectural features, modularity and compatible
software characteristics. The functions of: **target seeker head control**,
estimation, **guidance** and autopilot were addressed in the first study phase
and those of **seeker signal processing**, fuzing, telemetry, **test** and flight
phase/mode **control** were analyzed in the second study phase reported herein.
In addition, **simulation** analyses of estimation, **guidance** and autopilot
algorithms were performed to determine performance improvement as a
function of complexity. In summary, the studies have shown that modular
digital **guidance** and **control** is both feasible and effective in improving
missile performance and flexibility to counteract changing threat
situations and advancing technology.

Descriptors: ***Air to air missiles** ; Digital computers; Homing devices;
Integrated-circuits; **Signal processing**; Modular construction; Antiradiation
missiles ; Central processing units; Automatic pilots; Telemeter **systems**;
High level languages; Costs; Infrared detectors; Guided **missile** fuzes;
Radar; Computer program documentation

19/7,K/8 (Item 8 from file: 6)
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0606898 NTIS Accession Number: AD-A034 941/5/XAB

Performance of an Air-to-Ground Missile Employing SAR-Retrans Guidance

(Master's thesis)

Jessup, E. H.

Air Force Inst of Tech Wright-Patterson AFB Ohio School of Engineering
Corp. Source Codes: 012225
Report No.: GAE/MC/76D-6
Dec 76 229p

Document Type: Thesis
Journal Announcement: GRAI7708

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NTIS Prices: PC A11/MF A01

The compatibility of a representative 500 pound weight boost-glide **air-to-ground missile** with the trajectory constraints imposed by a Synthetic Aperture Radar - Retransmission **guidance system** was investigated using a digital flight **simulation**. A demonstration flight profile was assumed, with a minimum of 20 seconds of tracking on the **aircraft -to-target** line of sight required. A **guidance** algorithm was developed which produced satisfactory trajectories. A first order gradient technique was employed in an unsuccessful attempt to optimize the trajectories for maximum range. A useable **launch** envelope for this **missile** was determined. The azimuthal extent of the envelope was limited by radar **system** constraints to 15 deg-90 deg from the **aircraft** velocity vector. A maximum slant range of 21 nautical miles was obtained from a **launch** altitude of 35,000 ft. Range deteriorated rapidly with decreasing **launch** altitude, with 5,000 ft being the lowest altitude at which a useable **launch** envelope was obtained. Maximum slant range at 5,000 ft **launch** altitude was 5.5 nautical miles. (Author)

Descriptors: *Synthetic aperture radar; ***Air to surface missiles**; ***Guidance**; *Retransmission; Line of sight; Envelope(Space); Slant range; **Position**(Location); Performance; Algorithms; Computer programs; FORTRAN; Velocity; Theses; **Simulation**

19/7,K/13 (Item 13 from file: 6)
DIALOG(R)File 6:NTIS
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0781968 NTIS Accession Number: AD-A072 927/7/XAB
Distributed Source Generation for RF Environmental Modeling for Hardware-in-the-Loop Missile Guidance Simulation

(Technical rept)

Belrose, F. M. ; McPherson, D. A.

Army **Missile** Research and Development **Command** Redstone Arsenal AL
Technology Lab

Corp. Source Codes: 393427

Report No.: DRDMI-T-79-37

12 Mar 79 18p

Languages: English

Journal Announcement: GRAI7925

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NTIS Prices: PC A02/MF A01

The basic **simulation** philosophy of the Advanced **Simulation** Center

(ASC) is to incorporate as much **missile** hardware as possible into **simulation**. Errors associated with modeling nonlinear devices are thus avoided while increasing credibility of the **simulation**. However, this places a special burden on the **simulators** to display a realistic and comprehensive environment during the **simulations** because the **seekers** are stimulated at their operating wavelengths. The **seeker** is the more difficult subsystem to model properly and if it is to form valid responses to environmental stimuli, then the stimuli must portray the correct time, space and frequency characteristics of the **target**, clutter, ECM and multipath. (Author)

Descriptors: *Guided **missiles** ; *Radio homing; Digital **simulation** ; Mathematical models; Electronic countermeasures; Electronic counter countermeasures; Clutter; Coherent radiation; Closed **loop systems**; Multipath transmission; **Airplane** models

19/7,K/14 (Item 14 from file: 6)
DIALOG(R) File 6:NTIS
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0935826 NTIS Accession Number: AD-A107 612/4/XAB

Proceedings of the Tenth Biennial **Guidance Test** Symposium Held at Holloman Air Force Base, New Mexico, 7-9 October, 1981. Volume I

Brown, R. G. ; Morris, H. D. ; Flanner, P. D. ; Callahan, R. T. ; Katz, B.

Test Group (6585th), Holloman AFB, NM.

Corp. Source Codes: 030793000; 389490

Report No.: AD-TR-81-38-VOL-1

Oct 81 282p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI8207

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NTIS Prices: PC A13/MF A01

Country of Publication: United States

These proceedings contain papers included in the Tenth Biennial **Guidance Test** Symposium. This symposium, hosted by the Central Inertial **Guidance Test** Facility, is directed toward the exchange of information, stimulation of new ideas, and discussion of recent developments in the field of **guidance testing**. The papers presented include such topics as the use of the Global **Positioning System**, **Aircraft** Inertial Navigators, Component Evaluation, Advanced **Guidance** Methodology, **Missile Guidance Systems**, and Analysis Techniques. The included papers are those presented in the unclassified sessions of the symposium. Papers presented in the classified portions of the meeting are being published as Volume II. (Author)

...Descriptors: Inertial measurement units; Symposia; Sensitivity; High resolution; Inertial navigation; Gyroscopes; **Test** methods; **Test** facilities; Cruise **missiles** ; Omega navigation; Doppler navigation; **Test** beds; Computerized **simulation** ; State of the art

19/7,K/15 (Item 15 from file: 2)

Serial 09/700316

January 25, 2005

DIALOG(R) File 2:INSPEC

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02625229 INSPEC Abstract Number: B86017534, C86020758

Title: **Simulation** of the effects of multiple unresolvable **targets** on **missile guidance**

Author(s): Jolly, A.C.; Robbins, J.R.

Author Affiliation: Army **Missile** Lab., US Army **Missile Command**, Redstone Arsenal, AL, USA

Conference Title: Proceedings of the 1985 Summer Computer **Simulation** Conference p.645-8

Publisher: SCS, San Diego, CA, USA

Publication Date: 1985 Country of Publication: USA xxxiv+758 pp.

Conference Sponsor: SCS

Conference Date: 22-24 July 1985 Conference Location: Chicago, IL, USA

Language: English Document Type: Conference Paper (PA)

Treatment: Practical (P)

Abstract: The **signal** emitted by a radar transmitter also serves to identify the existence and **position** of the radar and can be received by a direction-finding RF sensor. This sensor can then be used as the basis for the **guidance system** of a precision guided munition (PGM), which is designed to home on the source of the radar emissions to deliver a warhead at the radar site. Such a scheme of PMG delivery provides an excellent 'fire-and-forget' offensive capability for **aircraft** intent on gaining **control** of a particular **airspace**. Predicted accuracy data of monopulse direction finding for a passive RF sensor can be used as a basis for generating an error model for sensor performance **simulations**. This paper contains a brief description of the **simulation** model used in the investigation, which is followed by a description of the **target** and PGM scenarios investigated. A summary of the results obtained is followed by the conclusions which are supported by the results. (4 Refs)

Subfile: B C

Descriptors: aerospace **simulation** ; ...

... **missiles** ;

...Identifiers: **missile guidance**...

...sensor performance **simulations**

19/7,K/17 (Item 17 from file: 6)

DIALOG(R) File 6:NTIS

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1568673 NTIS Accession Number: AD-A230 759/3

Airborne Seeker Test Bed

(Journal article)

Davis, C. W.

Massachusetts Inst. of Tech., Lexington. Lincoln Lab.

Corp. Source Codes: 009875001; 207650

Sponsor: Electronic **Systems** Div., Hanscom AFB, MA.

Report No.: JA-6531; ESD-TR-90-157

1990 23p

Languages: English Document Type: Journal article

Journal Announcement: GRAI9112

Pub. in The Lincoln Laboratory Journal, v3 n2 p203-224 1990. Original

contains color plates: All DTIC and NTIS reproductions will be in black and white.

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NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: F19628-90-C-0002

The **Airborne Seeker Test Bed** is a recently operational instrumentation **system** containing a closed-loop tracking, semi-active **seeker** with the capability to record high-fidelity **signals** pertaining to radar seeder phenomenology, **target** scattering characteristics, electronic countermeasures, and acquisition and tracking performance. The unique capabilities of the **test bed** will be used to collect data and develop computer models for evaluating and predicting **missile** performance. **Test bed** data will be used to evaluate the susceptibility of U.S. **aircraft** to **missile** attack, and to explore new directions for future **systems**. The **test bed** is also designed to support the development of advanced **seekers** and new electronic counter-countermeasure techniques, and to demonstrate their capabilities in flight. Keywords: Closed-looped tracking, Semi-active **seeker**, Counter-countermeasure. (RWJ)

Descriptors: *Electronic counter countermeasures; Acquisition; Advanced weapons; **Airborne**; **Aircraft** ; Attack; Closed loop **systems**; Computerized **simulation** ; Electronic countermeasures; Experimental data; Guided **missiles** ; Homing devices; Inflight; Instrumentation; Orientation(Direction); Performance(Engineering); Scattering; Semiactive **guidance** ; **Signals** ; **Targets**; **Test beds**; Tracking; Reprints

19/7,K/18 (Item 18 from file: 6)
DIALOG(R)File 6:NTIS
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1558927 NTIS Accession Number: AD-A228 155/8

conference Proceedings of the computer Aided **System** Design and **Simulation** (50th) Held in Cesme/Ismir, Turkey on 22-25 May 1990 (**Systeme** de Conception Aide par Ordinateur et **Simulation**)

Advisory Group for Aerospace Research and Development, Neuilly-sur-Seine (France).

Corp. Source Codes: 056102000; 400043

Report No.: AGARD-CP-473

cMay 90 389p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI9109

Theme in English and French. Some articles in French .

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NTIS Prices: PC A17/MF A03

Country of Publication: Other

As **guidance** and **control systems** have become more compl ex, the role of computers in their design and development has become increasingly important. The results of **simulation** have been presented regularly in **guidance** and **control** symposia and, to a lesser extent, the use of computer

design aids. However, it is considered that a symposium dedicated to computer aided design and **simulation** will provide a valuable opportunity to highlight the possibilities, the problems and solutions in this important field. Computer aided design and **simulation** find applications at all stages of a project's life, starting with the conceptual design phase in which a basic **system** is defined and its performance evaluated using standard or special purpose design aid tools and **simulation** software. In the subsequent development of the **system** the effects of individual components or **subsystems** such as filters, limiters and other non-linearities, sensor and actuator dynamics, and embedded computer algorithms, are progressively quantified. In the later stages of development and evaluation, the complete **system** is **simulated** in sufficient detail to verify **system** performance against specifications. As **system** development proceeds, increased emphasis is placed on real time computer **simulation**, with some or all of the hardware included in the **simulation**, depending on the phase of the project. Hardware-in-the-loop **simulation** includes the special case in which a human operator is included. The **air** of the symposium was to cover all stages of the development process. Keywords: French language, NATO furnished, **Missile** applications, **Aircraft** applications, Pilot in the loop **simulations**.
(kr)

Descriptors: *Computer aided design; *Control systems; *Systems engineering; *Computer applications; Actuators; **Air**; **Aircraft**; Computer programs; Computerized **simulation**; Computers; Dynamics; Embedding; French language; Guided **missiles**; **Loops**; **Nato**; Operators(Personnel); Real time; **Simulation**; Symposia

19/7,K/19 (Item 19 from file: 6)
DIALOG(R)File 6:NTIS
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1596426 NTIS Accession Number: AD-A237 382/7

Air Defense Initiative **Air-to-Air** Engagement Analysis. Volume 2. Error Models and **Simulation** for Case I: Pre-**Launch** Coordination Without Post-**Launch** Updates

(Final rept. 31 Jan 90-8 Mar 91)

Galdos, J. I.

Synetics Corp., Wakefield, MA.

Corp. Source Codes: 098227000; 398808

Report No.: TR-535-2

8 Mar 91 119p

Languages: English

Journal Announcement: GRAI9121

See also Volume 3, AD-A237 383.

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NTIS Prices: PC A06/MF A02

Country of Publication: United States

Contract No.: DCA100-90-C-0031

This volume formulates an error model for analyzing a cooperative engagement cruise **missile** defense scenario in which a surveillance platform transmits the location of a **target** to an **air** interceptor **missile** only once, just prior to **launch**. Included in this model is a description of

the three relevant inertial navigation **systems** (aboard the surveillance platform, the **launch** platform, and the **missile**), the **guidance system** of the **missile** , the surveillance platform radar, and the motion of the **target**. Detailed equations for each of these components are provided along with numerical **values** for the error parameters assumed for the various instruments.

Descriptors: **Airborne**; Defense planning; Equations; Errors; **Guidance**; Guided **missiles** ; Inertial navigation; Interceptors; **Launching**; Models; Moving **targets**; Parameters; Platforms; Search radar; **Simulation** ; Surveillance; War games

Identifiers: *Antimissile defense **systems**; *Air to air **missiles** ; Guided **missile** tracking **systems**; Information transfer; **Targeting**; Cooperation; Electronic **aircraft** ; Cooperative engagement; **Air** defense initiative; Mathematical models; End games analysis; Handover; Guided **missile targets** ; Threats; Cruise **missiles** ; Defense planning; Error analysis; NTISDODXA

19/7,K/20 (Item 20 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2005 Institution of Electrical Engineers. All rts. reserv.

04320045 INSPEC Abstract Number: B9302-7630-020, C9302-7460-020
Title: Star sensor **simulation** for astroinertial **guidance** and navigation
Author(s): Kennel, J.M.; Havstad, S.A.; Hood, D.D.
Author Affiliation: Div. of Electron. Syst., Northrop Corp., Hawthorne, CA, USA
Journal: Proceedings of the SPIE - The International Society for Optical Engineering vol.1694 p.74-84
Publication Date: 1992 Country of Publication: USA
CODEN: PSISDG ISSN: 0277-786X
U.S. Copyright Clearance Center Code: 0 8194 0859 X/92/\$4.00
Conference Title: Sensors and Sensor **Systems** for **Guidance** and Navigation

II

Conference Sponsor: SPIE
Conference Date: 22-23 April 1992 Conference Location: Orlando, FL, USA
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)

Treatment: Practical (P)

Abstract: Astroinertial navigation and **guidance systems** use star sensors to provide attitude correction information to the inertial **system**. **Aircraft** astroinertial navigation and ballistic **missile** astroinertial **guidance** present unique design challenges that prompted the development of a computer-based **simulation** tool. Star sensing from **aircraft** must be done during daylight when sky radiance causes a background fifty or more times larger than the star **signal**. Star sensing for spacecraft and ballistic **missile guidance** may be done in the presence of a high radiation environment that generates significant background noise. The presence of this high background noise complicates star sensor design. A star sensor **simulator** has been developed and applied to preliminary design issues. The **simulator** models characteristics of the star, background, windows, telescope, detector, electronics, and environment. **Simulation** generates data similar to that received from a real star sensor. The **simulated** data is then processed to reveal star sensing capability. Requirements, models, **simulator** design, and representative **simulations** are presented. (0 Refs)

Subfile: B C

...Descriptors: **aircraft** instrumentation...

...digital **simulation** ; ...

... **missiles**

...Identifiers: ballistic **missile** astroinertial **guidance**...

...computer-based **simulation** ; ...

... **aircraft** ; ...

...star sensor **simulator**

25/6/1 (Item 1 from file: 6)

2279885 NTIS Accession Number: PB2004-100964/XAB

Realtidssimuleringar av Malsoekare och Motmedel (Roek, Vattendimma) i en
Komplex Bakgrundsmilijoe (Real Time **Simulations** of **Target Seekers**
/Trackers and Countermeasures (Multispectral Smoke and Waterfog) in a
Complex Background)

cDec 2002

25/6/2 (Item 2 from file: 6)

1388738 NTIS Accession Number: AD-A196 269/5

Nondestructive Evaluation of Moisture Intrusion in **Missile** Components

(Final rept. Jun 86-Sep 8)

25 Sep 87

25/6/3 (Item 3 from file: 6)

0623189 NTIS Accession Number: AD-486 543/2/XAB

A **Systems** Description of the Dodco Re-Entry **Control** and Display Logic as
Utilized on the AFFDL Aerospace **Simulator**

(Final rept)

May 66

25/6/5 (Item 5 from file: 6)

0569358 NTIS Accession Number: AD-909 560/5/XAB

Air-to-Air Gunfire **Control System** Evaluator

(Final rept. 1 May 72-31 Oct 72)

Nov 72

25/6/6 (Item 6 from file: 6)

0366063 NTIS Accession Number: AD-754 928/XAB

Very Low Altitude Detection of Small Stationary **Targets** at Very Slow
Speeds: a **Simulation** Study Using Strip Photography

(Final rept)

Aug 72

25/6/7 (Item 1 from file: 8)

06249216

Title: An insect-inspired **targeting**/evasion reflex for autonomous **air**

vehicles

Conference Title: **Air Traffic Management for Commercial and Military Systems**

Publication Year: 2002

25/7,K/4 (Item 4 from file: 6)

DIALOG(R)File 6:NTIS

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0599902 NTIS Accession Number: AD-A034 214/7/XAB

Target Seeker Simulator Developed for Five-Inch ASMD **Missile Flight Tests**

(Technical memo)

Jarrell, E. C. ; Marlow, D. R. ; Tetens, H. B.

Johns Hopkins Univ Laurel Md Applied Physics Lab

Corp. Source Codes: 031650

Report No.: APL/JHU/TG-1302

Sep 76 73p

Journal Announcement: GRAI7706

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NTIS Prices: PC A04/MF A01

Contract No.: N00017-72-C-4401

A **target seeker simulator** has been successfully developed that, when installed in an AN/BQM-34A drone, **simulates** an active homing cruise **missile**. In order to **simulate** realistically a cruise **missile** illuminating and homing on a **target**, it was necessary to keep the **seeker** antenna pointed at the **target** regardless of the drone movement. Pointing of the **seeker** antenna is accomplished on the basis of **signals** received from an associated beacon at the **target** site. Flight **tests** conducted at the White Sands **Missile Range** (WSMR) in September 1975 produced satisfactory operational performance by the **target seeker simulator**. (Author)

Descriptors: *Guided **missile simulators** ; ***Target** acquisition; *Homing devices; *Cruise **missiles**; Antiradiation **missiles**; Antiship **missiles**; Active **systems**; Midcourse **guidance**; Terminal **guidance**; Radar homing; Infrared homing; Dual mode; **Target** drones; I band; **Simulators**

Serial 09/700316

January 25, 2005

File 9:Business & Industry(R) Jul/1994-2005/Jan 21
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 (c) 1999 U.S. Newswire via Comtex

Set	Items	Description
S1	524539	MISSILE? ? OR WEAPON? ?()SYSTEM? ?
S2	385092	SIMULAT?
S3	20215	GUIDANCE() (SIGNAL? ? OR SYSTEM? ?)
S4	9494	(FEEDBACK OR CONTROL) ()LOOP? ?
S5	9239	(TROUBLE OR CONTROL) () (SIGNAL? ? OR POSITION? ? OR VALUE? ?)
S6	1353	COMMAND() (SIGNAL? ? OR VALUE? ? OR POSITION? ?)
S7	7031	ACTUAL() (SIGNAL? ? OR VALUE? ? OR POSITION? ?)
S8	373	TARGET()SEEK???
S9	3131434	TEST???
S10	1392385	AIRCRAFT
S11	170044	AIRPLANE? ?
S12	5677	AEROPLANE? ?
S13	84235	BOMBER? ? OR FIGHTER() (PLANE? ? OR JET? ?)
S14	2876251	AIR
S15	787	S1/TI,DE AND S2/TI,DE
S16	18	S3:S7 AND S15
S17	13	RD (unique items)
S18	1	S17/2000:2005
S19	12	S17 NOT S18
S20	12	Sort S19/ALL/PD,A
S21	57	S1(2N)S2(S)S3:S7
S22	35	S10:S14(S)S21
S23	18	S9(S)S22
S24	17	S23 NOT S16
S25	14	RD (unique items)
S26	7	S25/2000:2005
S27	7	S25 NOT S26
S28	17	S22 NOT S23
S29	15	S28 NOT S16

S30 14 RD (unique items)
S31 2 S30/2000:2005
S32 12 S30 NOT S31
S33 12 Sort S32/ALL/PD,A
S34 5 S8(S)S9(S)S1(S)S2
S35 4 S34 NOT (S16 OR S22 OR S23)
S36 2 RD (unique items)
S37 40 S1(S)S8(S)S9
S38 15039 S1(S)S2
S39 5 S37 AND S38
S40 0 S39 NOT S34
S41 3483 S1(2N)S2
S42 449 S41(5N)S9
S43 148 S42(S)S10:S14
S44 1 S3:S8(S)S43 [a duplicate]
S45 147 S43 NOT (S34 OR S16 OR S22 OR S23 OR S39)
S46 109 RD (unique items)
S47 36 S46/2000:2005
S48 25 (S1/TI,DE AND S46) NOT S47
S49 25 Sort S48/ALL/PD,A
S50 35 S37 NOT (S43 OR S34 OR S16 OR S22 OR S23 OR S39)
S51 25 RD (unique items)
S52 6 S51/2000:2005
S53 19 S51 NOT S52
S54 19 Sort S53/ALL/PD,A

20/8/5 (Item 5 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01126659 Supplier Number: 40120937
Mitsubishi Awards **Missile Systems Simulator** Contract
July 29, 1987
PUBLISHER NAME: McGraw-Hill, Inc./Aviation Week Group
COMPANY NAMES: *Carco Electronics; Mitsubishi Heavy Industries Ltd.
EVENT NAMES: *430 (Capital expenditures); 610 (Contracts & orders received); 490 (Contracts & orders let)
GEOGRAPHIC NAMES: *9JAPA (Japan); 1USA (United States)
PRODUCT NAMES: *3760000 (**Missiles**, Space Vehicles & Parts); 3662788 (Trainers & **Simulators** NEC)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing);
333319 (Other Commercial and Service Industry Machinery Manufacturing)

20/8/6 (Item 6 from file: 587)
DIALOG(R)File 587:(c) 2005 Jane's Information Group. All rts. reserv.

00702661 Word Count:00019
Contract : AN/TPT-X unmanned threat emitters which **simulate** various surface-to-air **missile** radars, anti-aircraft artillery acquisition radars and **missile command guidance signals** .
JULY 9, 1988

20/8/7 (Item 7 from file: 636)
DIALOG(R)File 636:(c) 2005 The Gale Group. All rts. reserv.

01453649 Supplier Number: 41962640 (USE FORMAT 7 FOR FULLTEXT)
Researchers from Johns Hopkins Applied Physics Laboratory are using an old
solar powerplant research site to **simulate** the aerodynamic heating of a
missile traveling through the atmosphere.

March 29, 1991

Word Count: 390

PUBLISHER NAME: Pasha Publications, Inc.

INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business

20/8/8 (Item 8 from file: 16)

DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.

01624957 Supplier Number: 42006435 (USE FORMAT 7 FOR FULLTEXT)

TOMAHAWK BLOCK III **TEST SUCCESSFULLY SIMULATES** GPS JAMMING

April 15, 1991

Word Count: 253

PUBLISHER NAME: Phillips Business Information, Inc.

DESCRIPTORS: *Navy

EVENT NAMES: *330 (Product information)

GEOGRAPHIC NAMES: *1USA (United States)

PRODUCT NAMES: *3761118 (Sea Launched Cruise **Missiles**)

INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business

NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)

TRADE NAMES: BGM-109 Tomahawk

20/8/12 (Item 12 from file: 9)

DIALOG(R)File 9:(c) 2005 The Gale Group. All rts. reserv.

2556940 Supplier Number: 02556940 (USE FORMAT 7 OR 9 FOR FULLTEXT)

Lockheed's Akron, Ohio, Center Shifts from **Missiles** to Civil Markets

August 15, 1999

WORD COUNT: 2016

COMPANY NAMES: LOCKHEED MARTIN TACTICAL **SYSTEMS** (LOCKHEED MARTIN CORP)

PRODUCT NAMES: Electrical machinery, equipment, and supplies NEC (369900)

CONCEPT TERMS: All company; All product and service information; Orders;

Product development

GEOGRAPHIC NAMES: North America (NOAX); United States (USA)

20/3,K/1 (Item 1 from file: 80)

DIALOG(R)File 80:TGG **Aerospace/Def.Mkts**(R)

(c) 2005 The Gale Group. All rts. reserv.

01027553 Supplier Number: 39309731

BOEING BUILDING **SIMULATOR**

Microwaves & RF, v23, n2, p27

Feb, 1984

Language: English Record Type: Abstract

Document Type: Magazine/Journal; Trade

BOEING BUILDING **SIMULATOR**

ABSTRACT:

...wave **missile-guidance simulator**. The Interim Millimeter-Wave **Simulation System** will evaluate mm-wave **guidance systems** and realistic **target**, clutter, and countermeasure environments. Active-acquisition, active-track, active-to-passive hand...

20/3,K/2 (Item 2 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

02325980 SUPPLIER NUMBER: 03636492 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Guidance systems tested; a new closed-loop **simulator** checks out **missile guidance-and-controls systems** without flight **testing**.
Machine Design, v57, p46(2)
Feb 7, 1985
ISSN: 0024-9114 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
WORD COUNT: 355 LINE COUNT: 00028
...DESCRIPTORS: Guided **missiles** --

20/3,K/3 (Item 3 from file: 80)
DIALOG(R)File 80:TGG **Aerospace/Def.Mkts(R)**
(c) 2005 The Gale Group. All rts. reserv.

01118352 Supplier Number: 40035788
Army **Missile Command** Gets Unique **Simulator**
Defense News, v2, n17, p12
April 27, 1987
Language: English Record Type: Abstract
Document Type: Magazine/Journal; Tabloid; Trade

ABSTRACT:
...a hardware-in-the-loop **simulation** facility for developing and **testing** advanced **missile** sensor and **guidance systems** that use millimeter frequencies. Boeing **Aerospace** designed and built the Millimeter **Simulation System** for \$8...

20/3,K/4 (Item 4 from file: 160)
DIALOG(R)File 160:Gale Group PROMT(R)
(c) 1999 The Gale Group. All rts. reserv.

01734915
Mitsubishi Awards **Missile Systems Simulator** Contract
Aerospace Daily July 29, 1987 p. 159

... 5-axis flight motion **simulator**, which will be used to examine radar and infrared **missile guidance systems** for accuracy and stability. The company will also supply a Model S-105-4 four...

PRODUCT NAME: ***Missile s**, Space Vehicles & Parts; Trainers & **Simulators**
NEC

20/3,K/9 (Item 9 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

(c) 2005 The Gale Group. All rts. reserv.

02271201 Supplier Number: 42968293 (USE FORMAT 7 FOR FULLTEXT)
Rockwell shows off new SDI **simulator**
Defense & **Aerospace** Electronics, v2, n18, pN/A
May 4, 1992
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 822

Rockwell shows off new SDI **simulator**
... exploring areas in the NASA, Space Station **tests** or experimental
packages that have their own **guidance systems** ," said Paul Diggins, who
headed the team that developed the **simulator**. "We're just now...
NAICS CODES: 333319 (Other Commercial and Service Industry Machinery
Manufacturing); 336414 (Guided **Missile** and Space Vehicle Manufacturing

20/3,K/10 (Item 10 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2005 The Gale Group. All rts. reserv.

02793499 Supplier Number: 43750214 (USE FORMAT 7 FOR FULLTEXT)
Ariane 5 functional **simulation** facility
Interavia **Aerospace** World, p80
April, 1993
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 166
TEXT:
...using its functional **simulation** facility to verify the launcher's
electrical **systems** and **guidance** and **control loops** . **Actual** hardware
representing major subassemblies (see photo) is linked to **simulators** and
control facilities in...
NAICS CODES: 336415 (Guided **Missile** and Space Vehicle Propulsion Unit
and Propulsion Unit Parts Manufacturing)

20/3,K/11 (Item 11 from file: 80)
DIALOG(R)File 80:TGG **Aerospace/Def.Mkts**(R)
(c) 2005 The Gale Group. All rts. reserv.

01426257 Supplier Number: 53945370 (USE FORMAT 7 FOR FULLTEXT)
Antiship cruise **missiles** : technology, **simulation** and ship self-defense.
Pace, P.E.; Burton, G.D.
Journal of Electronic Defense, v21, n11, p51(6)
Nov, 1998
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 3306

... synthetic environment). In a real-time **simulation**, the **missile**
flies towards the **target** using the **guidance signals** from the **seeker**.
Since the **simulation** must finish in a required time frame, the time...
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)

27/8/1 (Item 1 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01000694 Supplier Number: 39056876
VARO'S DEPOT **MISSILE LAUNCHER TESTER**
Feb, 1982
PUBLISHER NAME: Unknown
COMPANY NAMES: *Varo Inc.
DESCRIPTORS: ***Air Force**
EVENT NAMES: *330 (Product information); 340 (Product specifications)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: **Air Force**
PRODUCT NAMES: *3825232 (**Aerospace Test Equip**); 3489210 (Launchers & Related Equip)
NAICS CODES: 334515 (Instrument Manufacturing for Measuring and **Testing** Electricity and Electrical **Signals**); 332995 (Other Ordnance and Accessories Manufacturing)
TRADE NAMES: **AEROSPACE TEST EQUIP**; **LAUNCHERS & RELATED EQUIP**; LAU-117

27/8/3 (Item 2 from file: 587)
DIALOG(R)File 587:(c) 2005 Jane`s Information Group. All rts. reserv.

10874193 Word Count:3646
Missing in Iraq: the UN charts Saddam's lethal inventory
MAY 01, 1999
COMPANY NAMES (DIALOG GENERATED): Al Haithem Institute : Biological Warfare Program : Industrial Commission : MIC : Stanford University : Technical Research Center : UN Security Council on : UN Special Commission : UNSCOM Richard Butler : US National Intelligence Council

27/8/4 (Item 3 from file: 587)
DIALOG(R)File 587:(c) 2005 Jane`s Information Group. All rts. reserv.

10870032 Word Count:474
Tomahawk beats the Year 2000 bug
NOVEMBER 01, 1998
COMPANY NAMES (DIALOG GENERATED): Cruise **Missiles** : Indian Head : US Naval Surface Warfare Center

27/8/5 (Item 4 from file: 587)
DIALOG(R)File 587:(c) 2005 Jane`s Information Group. All rts. reserv.

10867895 Word Count:5269
Anti-ship **missiles** intent on littoral and land attack roles
AUGUST 01, 1998
COMPANY NAMES (DIALOG GENERATED): **Aerospatiale** : Attack **Missile** : Boeing : Daimler Benz **Aerospace** : Dasa : Dynamics : Hypersonic **Weapons** Technology : Iranian SA : King **Air** : Learjet : Maverick : Mcdonnell **Aircraft** and **Missile Systems** : Raduga : Standard **Missile** : Surface Warfare Association : SLAM : Tomahawk Land Attack **Missile** : US **Air Force**

27/8/6 (Item 5 from file: 587)
DIALOG(R)File 587:(c) 2005 Jane`s Information Group. All rts. reserv.

10852263 Word Count:185
CONTRACTS AWARDED - TRAINING **SYSTEMS** |\ - Dornier Information and
Communication **Systems** Division\ - (Dasa - Daimler-Benz **Aerospace**)
Friedrichshafen, Germany\
DECEMBER 01, 1996
COMPANY NAMES (DIALOG GENERATED): Aerial **Target Systems** : Metero/Alenia

27/8/7 (Item 6 from file: 587)
DIALOG(R)File 587:(c) 2005 Jane`s Information Group. All rts. reserv.

00020804 Word Count:00376
AIR FORCE TO HIRE COMMERCIAL MANAGEMENT FOR HOLLOMAN TEST FACILITY
NOVEMBER 11, 1985
COMPANY NAMES (DIALOG GENERATED): 4585th **Test** Group

33/8/1 (Item 1 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.

00964463
Applied Dynamics Intl Ltd (UK) is a new computer marketing subsidiary of
Applied Dynamics Intl (US).
July 6, 1983

COMPANY:
*Applied Dynamics Intl
Rolls-Royce
Marconi Underwater Sys
Applied Dynamics
Applied Dynamics
Marconi Space & Defence
Applied Dynamics

PRODUCT: *Computers Wholesale (5081357); **Aircraft** Engines & Parts (3724000)
; **Missile** & Space Navigatnl Eqp (3662480); Computer Auxiliary Equip
(3573200)
EVENT: *Organizational History (12); Facilities & Equipment (44);
Parent-to-Subsidiary Data (14)
COUNTRY: *United Kingdom (4UK); United States (1USA)

33/8/2 (Item 2 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.

01729161
Military **affairs**: Carco Electronics wins MHI contract
July 21, 1987

COMPANY:
*Carco Electronics
Mitsubishi Heavy Ind DUNS: 69-054-3756 TICKER: MITH (NYSE) CUSIP:
606793

ASRC Searcher: Jeanne Horrigan
Serial 09/700316
January 25, 2005

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PRODUCT: *Trainers & **Simulators** NEC (3662788)
EVENT: *Order & Contracts Received (61); Contracts & Orders Let (49)
COUNTRY: *Japan (9JPN)

33/8/3 (Item 3 from file: 148)
DIALOG(R)File 148:(c)2005 The Gale Group. All rts. reserv.

03511146 SUPPLIER NUMBER: 06763409 (USE FORMAT 7 OR 9 FOR FULL TEXT)
LTV **Missiles** and Electronics Group receives contract.
June 17, 1988
WORD COUNT: 348 LINE COUNT: 00028

COMPANY NAMES: Sierra Research Div.--Contracts
INDUSTRY CODES/NAMES: BUS Business, General
DESCRIPTORS: United States. **Air** Force--Contracts; Military electronics
industry--Contracts
SIC CODES: 3670 Electronic Components and Accessories
TICKER SYMBOLS: LTV
FILE SEGMENT: NW File 649

33/8/4 (Item 4 from file: 636)
DIALOG(R)File 636:(c) 2005 The Gale Group. All rts. reserv.

01027174 Supplier Number: 40422815 (USE FORMAT 7 FOR FULLTEXT)
SIERRA AWARDED \$118.1 MILLION FOR AN/TPT-X
June 21, 1988
Word Count: 145
PUBLISHER NAME: Phillips Business Information, Inc.
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business

33/8/5 (Item 5 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.

01950923
Air Force Orders Threat Emitters From Sierra Research
June 22, 1988

COMPANY:
*Sierra Research

PRODUCT: *Radar Threat Emulators (3662547)
EVENT: *Order & Contracts Received (61)
COUNTRY: *United States (1USA)

33/8/6 (Item 6 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01154801 Supplier Number: 40423590
Air Force Orders Threat Emitters From Sierra Research
June 22, 1988
PUBLISHER NAME: McGraw-Hill, Inc./Aviation Week Group
COMPANY NAMES: *Sierra Research
DESCRIPTORS: ***Air** Force

ASRC Searcher: Jeanne Horrigan
Serial 09/700316
January 25, 2005

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EVENT NAMES: *610 (Contracts & orders received)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: Air Force
PRODUCT NAMES: *3662547 (Radar Threat Emulators)
INDUSTRY NAMES: AERO (Aerospace and Defense); BUSN (Any type of business
)
NAICS CODES: 334511 (Search, Detection, Navigation, Guidance,
Aeronautical, and Nautical System and Instrument Manufacturing)
TRADE NAMES: AN/TPT-X

33/8/7 (Item 7 from file: 624)
DIALOG(R)File 624:(c) 2005 McGraw-Hill Co. Inc. All rts. reserv.

0075644
LTV'S SIERRA RESEARCH DIV.
June 27, 1988
WORD COUNT: 66

33/8/8 (Item 8 from file: 636)
DIALOG(R)File 636:(c) 2005 The Gale Group. All rts. reserv.

01030198 Supplier Number: 40439976 (USE FORMAT 7 FOR FULLTEXT)
AN/TPT-X
July 7, 1988
Word Count: 145
PUBLISHER NAME: Phillips Business Information, Inc.
INDUSTRY NAMES: AERO (Aerospace and Defense); BUSN (Any type of business
)

33/8/9 (Item 9 from file: 635)
DIALOG(R)File 635:(c) 2005 ProQuest Info&Learning. All rts. reserv.

0140879 90-23859
Loral Reports Record Results for Fiscal 1990; Earnings Up 29 Percent on
Continuing Operations
PUBL DATE: 900515
WORD COUNT: 999
DATELINE: New York, NY, US

COMPANY NAMES: Loral Corp, New York, NY, US, DUNS:00-164-2719,
SIC:6711;3662;3443, Ticker:LOR
CLASSIFICATION CODES: 8650 (Electrical & electronics industries); 3100
(Capital & debt management)
DESCRIPTORS: Electronics industry; Defense industry; Financial statements;
Earnings; Quarterly reports; Middle Atlantic
SPECIAL FEATURE: Table

33/8/12 (Item 12 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01431620 Supplier Number: 54456376 (USE FORMAT 7 FOR FULLTEXT)
Simulation Services Sought.

Serial 09/700316

January 25, 2005

April 16, 1999

Word Count: 264

PUBLISHER NAME: King Publishing

DESCRIPTORS: *Naval Air Warfare Center Aircraft Division

EVENT NAMES: *389 (Alliances, partnerships)

GEOGRAPHIC NAMES: *1USA (United States)

GOVERNMENT AGENCY: Naval Air Warfare Center Aircraft Division

PRODUCT NAMES: *7372000 (Computer Software)

INDUSTRY NAMES: AERO (Aerospace and Defense); BUSN (Any type of business)

NAICS CODES: 51121 (Software Publishers)

33/3,K/10 (Item 10 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB

(c)2005 The Gale Group. All rts. reserv.

04787294 SUPPLIER NUMBER: 08820346 (USE FORMAT 7 OR 9 FOR FULL TEXT)

Improved, cost-saving test system delivered to U.S. Army.

PR Newswire, 0906SE006

Sept 6, 1990

LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT

WORD COUNT: 618 LINE COUNT: 00050

33/3,K/11 (Item 11 from file: 624)

DIALOG(R)File 624:McGraw-Hill Publications

(c) 2005 McGraw-Hill Co. Inc. All rts. reserv.

0247092

Electronic Warfare - Part 2

Aviation Week & Space Technology, Vol. 133, No. 17, Pg 59

October 22, 1990

JOURNAL CODE: AW

SECTION HEADING: Electronic Warfare - Part 2 ISSN: 0005-2175

WORD COUNT: 1,294

TEXT:

...tracking radar which is not affected by airborne countermeasures.

To assess the effect of an aircraft 's ECM against the missile's own terminal guidance system , EMTE uses a pod-mounted replica flown aboard an F-4. The F-4's flight path simulates the missile 's trajectory based on its guidance system 's perception of target location. A second pod carried by the F-4 contains a...

36/7/1 (Item 1 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

(c) 2005 The Gale Group. All rts. reserv.

01483566 Supplier Number: 41796218 (THIS IS THE FULLTEXT)

NAVY SUCCESSFULLY TEST FIRES HARM MISSILE

Defense Week, v12, n3, pN/A

Jan 14, 1991

TEXT:

The Navy has successfully test fired a HARM anti-radiation missile equipped with a new low cost target seeker produced by the Loral Corp.

The **missile** was fired Dec. 20 from a Navy F/A-18 **aircraft** against **simulated** enemy radar.

The **seeker** is the product of a 1985 development contract. Loral **Aeronutronic** is currently under a \$21.4 million contract to produce 100 **seekers**.

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49/8/1 (Item 1 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01000184 Supplier Number: 39049139
STINGER SYSTEM REPLACES REDEYE
Jan, 1982
PUBLISHER NAME: Marine Corps Association
DESCRIPTORS: *Marines
EVENT NAMES: *330 (Product information); 430 (Capital expenditures)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: Marines
PRODUCT NAMES: *3761131 (**Antiaircraft** Surface-to-Air **Missiles**); 3662782
(Trainers & **Simulators**)
INDUSTRY NAMES: **AERO** (**Aerospace** and Defense); BUSN (Any type of business
)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing);
333319 (Other Commercial and Service Industry Machinery Manufacturing)
TRADE NAMES: **ANTIAIRCRAFT SURFACE-TO-AIR MISSILES**; FIM-92A **STINGER**; **REDEYE**
(MIM-43A); **TRAINERS & SIMULATORS**; FIELD HANDLING **TRAINER**; **TRACKING HEAD**
TRAINER; **STINGER LAUNCH SIMULATOR**

49/8/2 (Item 2 from file: 148)
DIALOG(R)File 148:(c)2005 The Gale Group. All rts. reserv.

01774092 SUPPLIER NUMBER: 02802266 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Calspan, Dynalelectron win Army contract.
June 14, 1983
WORD COUNT: 280 LINE COUNT: 00025

COMPANY NAMES: Calspan Corp.--Contracts; Dynalelectron Corp.--Contracts;
Dynaspan Service Co.--Contracts
INDUSTRY CODES/NAMES: BUS Business, General
DESCRIPTORS: United States. Army Material **Test** and Evaluation Directorate
--Contracts; Engineering--Contracts; Guided **missiles**--**Testing**; Electronic
data processing--Contracts
SIC CODES: 7374 Data processing and preparation
TICKER SYMBOLS: ARV; DYN
FILE SEGMENT: NW File 649

49/8/3 (Item 3 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01022566 Supplier Number: 39276007
TELEDYNE RYAN **AERONAUTICAL** HAS RECEIVED A \$60.2 MIL CONTRACT...
Nov, 1983

Serial 09/700316

January 25, 2005

PUBLISHER NAME: **Air** Force Association
COMPANY NAMES: *Teledyne Ryan Electronics; United Technologies Corp.
DESCRIPTORS: *Military/Defense Forces
EVENT NAMES: *330 (Product information); 440 (Facilities & equipment)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: Military/Defense Forces
PRODUCT NAMES: *3764000 (**Missile** & Space Engines & Parts); 3721191
(Remotely Piloted Vehicles & Drones)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business
)
NAICS CODES: 336415 (Guided **Missile** and Space Vehicle Propulsion Unit
and Propulsion Unit Parts Manufacturing); 336411 (**Aircraft** Manufacturing
)
TICKER SYMBOLS: UTX
TRADE NAMES: **MISSILE** & SPACE ENGINES & PARTS; REMOTELY PILOTED VEH &
DRONES; FIREBOLT

49/8/4 (Item 4 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01056688 Supplier Number: 39515245
AIR FORCE DEMONSTRATES MX COLD-LAUNCH IN TESTS
April 29, 1985
PUBLISHER NAME: McGraw-Hill, Inc.
COMPANY NAMES: *Westinghouse Electric Corp.
DESCRIPTORS: ***Air** Force
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: **Air** Force
PRODUCT NAMES: *3761112 (Ground-Based Intercontinental **Missiles**)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business
) ; TRAN (Transportation, Distribution and Purchasing)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)
TICKER SYMBOLS: WX
TRADE NAMES: GROUND-BASED INTERCONTINENTAL **MISSILES**; MGM-118A MX
PEACEKEEPER

49/8/5 (Item 5 from file: 587)
DIALOG(R)File 587:(c) 2005 Jane's Information Group. All rts. reserv.

00037869 Word Count:01915
Missile testing at Point Mugu
MARH 21, 1987
COMPANY NAMES (DIALOG GENERATED): Department of Defense : High Performance
Anti Radiation **Missile** : HARM : Maverick : Naval Ship **Weapon Systems**
Engineering : NAVAL **Air Missile Test** Centre : Pacific **Missile Test**
Center : Phoenix T & E : **Systems** Integration Laboratory : **Test** Center
: **Weapons** Support

49/8/6 (Item 6 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01127739 Supplier Number: 40129389

Air Force to Test OTH-B Radar With Simulated Cruise Missiles
August 3, 1987
PUBLISHER NAME: Army Times Publishing Company
DESCRIPTORS: ***Air Force**
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: **Air Force**
PRODUCT NAMES: *3662546 (Ground-Based Search & Detect Radar)
INDUSTRY NAMES: **AERO** (**Aerospace and Defense**); BUSN (Any type of business
NAICS CODES: 334511 (Search, Detection, Navigation, **Guidance**,
Aeronautical, and Nautical **System** and Instrument Manufacturing)
TRADE NAMES: Over-The-Horizon Backscatter; OTH-B

49/8/7 (Item 7 from file: 148)
DIALOG(R) File 148:(c)2005 The Gale Group. All rts. reserv.

03297220 SUPPLIER NUMBER: 05263130 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Small ICBM cold launch canister **test** successful. (Intercontinental
Ballistic **Missile**)
Oct 23, 1987
WORD COUNT: 456 LINE COUNT: 00036

COMPANY NAMES: Martin Marietta Corp.--Research
INDUSTRY CODES/NAMES: BUS Business, General
DESCRIPTORS: United States. **Air Force Systems Command**--Research;
Intercontinental ballistic **missiles**--Launching; Guided **missile** industry
--Research; Intercontinental ballistic **missiles**--Testing
SIC CODES: 3761 Guided **missiles** and space vehicles
TICKER SYMBOLS: ML
FILE SEGMENT: NW File 649

49/8/8 (Item 8 from file: 80)
DIALOG(R) File 80:(c) 2005 The Gale Group. All rts. reserv.

01160786 Supplier Number: 40494657
US interest in Arrow grows
Sept, 1988
PUBLISHER NAME: Jane's Information Group
COMPANY NAMES: *Israel **Aircraft** Industries Ltd.
DESCRIPTORS: *Dept/Ministry of Defense
EVENT NAMES: *610 (Contracts & orders received)
GEOGRAPHIC NAMES: *1USA (United States); 7ISRA (Israel)
GOVERNMENT AGENCY: Dept/Ministry of Defense
PRODUCT NAMES: *3761132 (**Antimissile** Surface-to-Air **Missiles**)
INDUSTRY NAMES: **AERO** (**Aerospace and Defense**); BUSN (Any type of business
); INTL (Business, International)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)
TRADE NAMES: Arrow

49/8/9 (Item 9 from file: 624)
DIALOG(R) File 624:(c) 2005 McGraw-Hill Co. Inc. All rts. reserv.

0141341

NAVY WOULD **TEST MISSILE** DEVICES OUT OF VIEW OF SOVIET SATELLITES
February 21, 1989
WORD COUNT: 466

49/8/10 (Item 10 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.

01439420 Supplier Number: 41725547 (USE FORMAT 7 FOR FULLTEXT)
NLOS FIRST CAPTIVE FLIGHT SUCCESSFUL
Dec 10, 1990
Word Count: 247
PUBLISHER NAME: Phillips Business Information, Inc.
DESCRIPTORS: *Army
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3761171 (Antitank & Antiarmor **Missiles**); 3662534
(Heat-**Seeking** Fire **Control** Eqp)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business
)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing);
334511 (Search, Detection, Navigation, **Guidance**, **Aeronautical**, and
Nautical **System** and Instrument Manufacturing)
TRADE NAMES: NLOS; Non-Line-of-Sight **Missile**

49/8/11 (Item 11 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.

02943658 Supplier Number: 43981692 (USE FORMAT 7 FOR FULLTEXT)
IAI's Arrow misses the **target** again
July 21, 1993
Word Count: 222
PUBLISHER NAME: Reed Elsevier Business Publishing, Ltd.
COMPANY NAMES: *Israel **Aircraft** Industries Ltd.
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *7ISRA (Israel)
PRODUCT NAMES: *3761132 (Antimissile Surface-to-Air **Missiles**)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business
) ; INTL (Business, International)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)
SPECIAL FEATURES: COMPANY

49/8/12 (Item 12 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.

03072819 Supplier Number: 44183480
ARROW WARHEAD FAILS TO DETONATE
Oct 25, 1993
PUBLISHER NAME: McGraw-Hill, Inc.
COMPANY NAMES: *Israel **Aircraft** Industries Ltd.
EVENT NAMES: *350 (Product standards, safety, & recalls); 610 (Contracts
& orders received); 900 (Government expenditures)
GEOGRAPHIC NAMES: *7ISRA (Israel); 1USA (United States)
PRODUCT NAMES: *3761132 (Antimissile Surface-to-Air **Missiles**)

INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business)
); TRAN (Transportation, Distribution and Purchasing)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)
TRADE NAMES: Arrow 1
SPECIAL FEATURES: COMPANY

49/8/13 (Item 13 from file: 148)
DIALOG(R)File 148:(c)2005 The Gale Group. All rts. reserv.

06780057 SUPPLIER NUMBER: 14768101 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Computer Science and Application Inc. (contract for support of **Aeronautical Systems Center's** and **Air Force Development Test Center's Missile Simulation Lab**, Guided **Weapon** Evaluation Facility) (Contracts)
Nov 29, 1993
WORD COUNT: 42 LINE COUNT: 00003

COMPANY NAMES: Computer Science and Applications Inc.--Contracts
INDUSTRY CODES/NAMES: ELEC Electronics
DESCRIPTORS: United States. **Air Force. Aeronautical Systems Div.--**
Contracts; Computer services industry--Contracts
SIC CODES: 8711 Engineering services; 8731 Commercial physical research
; 7379 Computer related services, not elsewhere classified; 8700
ENGINEERING & MANAGEMENT SERVICES
FILE SEGMENT: TI File 148

49/8/14 (Item 14 from file: 624)
DIALOG(R)File 624:(c) 2005 McGraw-Hill Co. Inc. All rts. reserv.

0576725
MISSILE RANGE SERVES AS MODEL FOR T&E
June 13, 1994
WORD COUNT: 1,150

49/8/15 (Item 15 from file: 636)
DIALOG(R)File 636:(c) 2005 The Gale Group. All rts. reserv.

02654327 Supplier Number: 45375963 (USE FORMAT 7 FOR FULLTEXT)
U.S. - NAVY CEC **SYSTEM** PASSES **MISSILE -DEFENSE TEST** (MAR 1/DN)
March 1, 1995
Word Count: 68
PUBLISHER NAME: United Communications Group
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business)
)

49/8/16 (Item 16 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.

04218824 Supplier Number: 46172579
Arrow Program Officials Claim Radar **Test** Success
Feb 26, 1996
PUBLISHER NAME: Army Times Publishing Company
COMPANY NAMES: *Elta Electronics Industries Ltd.; Israel **Aircraft**

Industries Ltd.
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *7ISRA (Israel); 1USA (United States)
PRODUCT NAMES: *3761132 (Antimissile Surface-to-Air Missiles); 3662554
(Ground-Based Tracking Radar)
INDUSTRY NAMES: AERO (Aerospace and Defense); BUSN (Any type of business
)
NAICS CODES: 336414 (Guided Missile and Space Vehicle Manufacturing);
334511 (Search, Detection, Navigation, Guidance, Aeronautical, and
Nautical System and Instrument Manufacturing)
TRADE NAMES: Arrow; Arrow 2; Green Pine
SPECIAL FEATURES: illustration; photograph
SPECIAL FEATURES: COMPANY

49/8/17 (Item 17 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.

04804238 Supplier Number: 47069075 (USE FORMAT 7 FOR FULLTEXT)
Navy considers benefits of Sea Ferret, an Army spin-off
Jan 27, 1997
Word Count: 557
PUBLISHER NAME: King Publishing
COMPANY NAMES: *Northrop Grumman Corp.
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3761100 (Missiles)
INDUSTRY NAMES: AERO (Aerospace and Defense); BUSN (Any type of business
)
NAICS CODES: 336414 (Guided Missile and Space Vehicle Manufacturing)
TRADE NAMES: Sea Ferret
SPECIAL FEATURES: COMPANY

49/8/18 (Item 18 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.

04988795 Supplier Number: 47328105 (USE FORMAT 7 FOR FULLTEXT)
FRANCE - ASTER 15 CONDUCTS INTERCEPT TEST (APR 25/FI)
April 25, 1997
Word Count: 84
PUBLISHER NAME: United Communications Group
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *4EUFR (France)
PRODUCT NAMES: *3761132 (Antimissile Surface-to-Air Missiles)
INDUSTRY NAMES: AERO (Aerospace and Defense); BUSN (Any type of business
)
NAICS CODES: 336414 (Guided Missile and Space Vehicle Manufacturing)
TRADE NAMES: Aster 15; C22

49/8/19 (Item 19 from file: 264)
DIALOG(R)File 264:(c) 2005 The Dialog Corp. All rts. reserv.

00025254
U.S., U.K. TO STUDY ANTI-AIR MISSILES FOR HELOS By Greg Caires

Serial 09/700316

January 25, 2005

July 16, 1997

WORD COUNT: 438

(c) PHILLIPS PUBLISHING INTERNATIONAL All Rts. Reserv.

COMPANY NAMES (DIALOG GENERATED): Hughes

49/8/20 (Item 20 from file: 636)

DIALOG(R)File 636:(c) 2005 The Gale Group. All rts. reserv.

03839058 Supplier Number: 48340999 (USE FORMAT 7 FOR FULLTEXT)

US - ARMY TESTS BALLISTIC MISSILE TARGET (MAR 6/DSD)

March 6, 1998

Word Count: 282

PUBLISHER NAME: United Communications Group

INDUSTRY NAMES: AERO (Aerospace and Defense); BUSN (Any type of business
)

49/8/21 (Item 21 from file: 148)

DIALOG(R)File 148:(c)2005 The Gale Group. All rts. reserv.

10211624 SUPPLIER NUMBER: 20617141 (USE FORMAT 7 OR 9 FOR FULL TEXT)

NMD CHIEF WANTS BOEING TO REVIEW 'WELCH' REPORT.(National Missile
Defense)

May 18, 1998

WORD COUNT: 403 LINE COUNT: 00035

INDUSTRY CODES/NAMES: AERO Aerospace and Defense; BUSN Any type of
business

DESCRIPTORS: United States. Ballistic Missile Defense Organization--
Management; Ballistic missile defenses--Testing

NAMED PERSONS: Cosumano, Joseph--Planning

PRODUCT/INDUSTRY NAMES: 3761108 (Ballistic Missile Defense Systems)

SIC CODES: 3761 Guided missiles and space vehicles

FILE SEGMENT: TI File 148

49/8/22 (Item 22 from file: 148)

DIALOG(R)File 148:(c)2005 The Gale Group. All rts. reserv.

10315394 SUPPLIER NUMBER: 20897553 (USE FORMAT 7 OR 9 FOR FULL TEXT)

AFEWES TO DEVELOP NEW SIMULATOR.

July 8, 1998

WORD COUNT: 198 LINE COUNT: 00019

COMPANY NAMES: Lockheed Martin Corp.--Contracts

INDUSTRY CODES/NAMES: AERO Aerospace and Defense; BUSN Any type of
business

DESCRIPTORS: United States. Air Force--Contracts; Aerospace industry--
Contracts; Ballistic missile defenses--Testing

PRODUCT/INDUSTRY NAMES: 3761108 (Ballistic Missile Defense Systems)

SIC CODES: 3761 Guided missiles and space vehicles

TICKER SYMBOLS: LMT

Serial 09/700316

January 25, 2005

FILE SEGMENT: TI File 148

49/8/23 (Item 23 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.

01426269 Supplier Number: 53953710 (USE FORMAT 7 FOR FULLTEXT)
A new approach to **missile** warning.(Cover Story)
Oct, 1998
Word Count: 3371
PUBLISHER NAME: Horizon House Publications, Inc.
SPECIAL FEATURES: illustration; 1
EVENT NAMES: *331 (Product development)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3662062 (**Missile** Electronics); 3662501 (Electronic Warfare Equipment); 3601011 (Military Electronics)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business); ELEC (Electronics)
NAICS CODES: 334511 (Search, Detection, Navigation, **Guidance**, **Aeronautical**, and Nautical **System** and Instrument Manufacturing); 3359 (Other Electrical Equipment and Component Manufacturing)

49/8/24 (Item 24 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.
01439174 Supplier Number: 55537088 (USE FORMAT 7 FOR FULLTEXT)
F14 **Tested** For Vulnerability Against Stinger **Missile** >BY LISA TROSHINSKY.
August 23, 1999
Word Count: 530
PUBLISHER NAME: King Publishing
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3761131 (Antiaircraft Surface-to-Air **Missiles**); 3721130 (**Fighters** & Attack **Aircraft**)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business) DA (Defense and **Aerospace**)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing); 336411 (**Aircraft** Manufacturing)

49/8/25 (Item 25 from file: 264)
DIALOG(R)File 264:(c) 2005 The Dialog Corp. All rts. reserv.
00025613
U.S., BRITISH ARMIES AGREE TO STUDY ANTI-AIR **MISSILES** FOR HELOS
August 1, 1997
WORD COUNT: 439
(c) PHILLIPS PUBLISHING INTERNATIONAL All Rts. Reserv.
COMPANY NAMES (DIALOG GENERATED): Hughes

54/8/2 (Item 2 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.
01004489 Supplier Number: 39125130
THE MAVERICK FAMILY
August, 1982
PUBLISHER NAME: Syed Hussain Publication Sdn Bhd
COMPANY NAMES: *Hughes **Aircraft** Co.; MARTIN MARIETTA
DESCRIPTORS: *Military/Defense Forces **Air** Force
EVENT NAMES: *330 (Product information); 960 (International politics);

340 (Product specifications)
GEOGRAPHIC NAMES: *1USA (United States); 7ISRA (Israel)
GOVERNMENT AGENCY: Military/Defense Forces; **Air Force**
PRODUCT NAMES: *3761141 (**Air-to-Ground Missiles**); 3721133 (**Attack Aircraft**)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business); INTL (Business, International)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing); 336411 (**Aircraft** Manufacturing)
TRADE NAMES: **AIR-TO-GROUND MISSILES**; BULLPUP (AGM-12); AGM-12 BULLPUP; AGM-65A MAVERICK; **ATTACK AIRCRAFT**; AGM-65B MAVERICK; A-10

54/8/3 (Item 3 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.
01042269 Supplier Number: 39415104
THE HELLFIRE ANTITANK MISSILE
Oct, 1984
PUBLISHER NAME: Umschau Verlag
COMPANY NAMES: *Rockwell International Corp.
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3761171 (**Antitank & Antiarmor Missiles**); 3721141 (**Attack Helicopters**)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business); INTL (Business, International)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing); 336411 (**Aircraft** Manufacturing)
TICKER SYMBOLS: ROK
TRADE NAMES: **ANTITANK & ANTIARMOR MISSILES**; AGM-114A HELLFIRE; **ATTACK HELICOPTERS**; AH-64A APACHE

54/8/4 (Item 4 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.
01050704 Supplier Number: 39473357
MBB CONSORTIUM TESTING A NEW ANTI-AIRCRAFT CONCEPT
Feb, 1985
PUBLISHER NAME: Armada International
COMPANY NAMES: *AEG-Telefunken AG; MESSERSCHMITT-BOELKOW-BLOHM; Siemens AG
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *4EUGE (Germany)
PRODUCT NAMES: *3761131 (**Antiaircraft Surface-to-Air Missiles**)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business); INTL (Business, International)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)
TRADE NAMES: **ANTIAIRCRAFT SURFACE-TO-AIR MISSILES**; MAS

54/8/5 (Item 5 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.
01132293 Supplier Number: 40170942
GAO says 4 Navy **missiles** could fail
Sept 23, 1987
PUBLISHER NAME: Washington Post Company
DESCRIPTORS: *Legislature Navy
EVENT NAMES: *350 (Product standards, safety, & recalls)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: Legislature; Navy

PRODUCT NAMES: *3761155 (Air-to-Air Missiles ex Antisatellite); 3761141
(Air-to-Ground Missiles); 3761142 (Air-to-Surface Antiship Missiles)
INDUSTRY NAMES: BUSN (Any type of business); REG (Business, Regional)
NAICS CODES: 336414 (Guided Missile and Space Vehicle Manufacturing)
TRADE NAMES: AIM-7 Sparrow; AIM-54 Phoenix; AGM-88 HARM; AGM-84 Harpoon

54/8/6 (Item 6 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.
01843521
HONEYWELL RECEIVES \$4 MILLION CONTRACT FROM BOEING
November 25, 1987
COMPANY:
*Honeywell DUNS: 00-132-5240 TICKER: HON (NYSE) CUSIP: 438506
Boeing Aerospace
PRODUCT: *Torpedoes & Parts (3483314)
EVENT: *Licensee & Sales Agreements (38)
COUNTRY: *United States (1USA)

54/8/11 (Item 11 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.
01172618 Supplier Number: 40663184
US Army MICOM gets high-powered 95 GHz research radar...
Feb, 1989
PUBLISHER NAME: Electronic Warfare Digest
COMPANY NAMES: *Georgia Inst of Technology
DESCRIPTORS: *Army
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: Army
PRODUCT NAMES: *3662540 (Radar Systems & Equip)
NAICS CODES: 334511 (Search, Detection, Navigation, Guidance,
Aeronautical, and Nautical System and Instrument Manufacturing)

54/8/12 (Item 12 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.
02369725
Army probes use of heated test targets
November 20, 1989
PRODUCT: *Heat-Seeking Fire Control Eqp (3662534); Antitank & Antiarmor
Missiles (3761171)
EVENT: *Product Standards & Quality (35); Product Design & Development
(33)
COUNTRY: *United States (1USA)

54/8/13 (Item 13 from file: 80)
DIALOG(R)File 80:(c) 2005 The Gale Group. All rts. reserv.
01196909 Supplier Number: 41029839
Army probes use of heated test targets
Nov 20, 1989
PUBLISHER NAME: Army Times Publishing Company
DESCRIPTORS: *Army
EVENT NAMES: *350 (Product standards, safety, & recalls); 330 (Product
information)
GEOGRAPHIC NAMES: *1USA (United States)
GOVERNMENT AGENCY: Army
PRODUCT NAMES: *3662534 (Heat-Seeking Fire Control Eqp); 3761171

(Antitank & Antiarmor **Missiles**)

INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business
NAICS CODES: 334511 (Search, Detection, Navigation, **Guidance**,
Aeronautical, and Nautical **System** and Instrument Manufacturing); 336414
(Guided **Missile** and Space Vehicle Manufacturing)
TRADE NAMES: Advanced Antitank **Weapon System**-Medium; AAWS-M

54/8/14 (Item 14 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.
01400350 Supplier Number: 41668914
Army Balks at Congress' Pressure to Field AAWS-M
Nov 12, 1990
PUBLISHER NAME: Army Times Publishing Company
COMPANY NAMES: *Martin Marietta; Texas Instruments Inc.
DESCRIPTORS: *Army
EVENT NAMES: *350 (Product standards, safety, & recalls); 330 (Product
information); 990 (Social procedures)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3761171 (Antitank & Antiarmor **Missiles**)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)
TICKER SYMBOLS: TXN
TRADE NAMES: Advanced Antitank **Weapon System**-Medium; AAWS-M
SPECIAL FEATURES: COMPANY

54/8/15 (Item 15 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.
05202318 Supplier Number: 47936810
Fifth Thaad **test** delayed to allow for IMU replacement.
August 27, 1997
PUBLISHER NAME: McGraw-Hill, Inc./Aviation Week Group
DESCRIPTORS: *Dept/Ministry of Defense
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3761108 (Ballistic **Missile** Defense **Systems**)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)
TRADE NAMES: Theater High Altitude Area Defense

54/8/16 (Item 16 from file: 624)
DIALOG(R)File 624:(c) 2005 McGraw-Hill Co. Inc. All rts. reserv.
00911254
New problems with THAAD **missile** further delay flight **test**
January 22, 1998
WORD COUNT: 898
COMPANY NAMES: Army 's Theater High Altitude Area Defense ; Association of
the U S Army ; BMDO ; Lockheed Martin ; Pentagon 's Ballistic **Missile**
Defense Organization ; THAAD

54/8/17 (Item 17 from file: 587)
DIALOG(R)File 587:(c) 2005 Jane's Information Group. All rts. reserv.
10869356 Word Count:314
France and Sweden give go-ahead for BONUS
SEPTEMBER 01, 1998
COMPANY NAMES (DIALOG GENERATED): Bofors **Weapon Systems** ; GIAT Industries :
Swedish Defence Materiel Administration

54/8/18 (Item 18 from file: 16)
DIALOG(R)File 16:(c) 2005 The Gale Group. All rts. reserv.

06069278 Supplier Number: 53539763 (USE FORMAT 7 FOR FULLTEXT)
RAYTHEON NETS \$73 MILLION FOR U.S., DUTCH, EGYPTIAN **MISSILE** UPGRADES.
Jan 6, 1999
Word Count: 450
PUBLISHER NAME: Phillips Business Information, Inc.
COMPANY NAMES: *Raytheon Aerospace Co.
EVENT NAMES: *613 (New orders received)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3760000 (**Missiles**, Space Vehicles & Parts)
INDUSTRY NAMES: **AERO** (Aerospace and Defense); BUSN (Any type of business)
NAICS CODES: 336414 (Guided **Missile** and Space Vehicle Manufacturing)
SPECIAL FEATURES: INDUSTRY; COMPANY

54/8/19 (Item 19 from file: 264)
DIALOG(R)File 264:(c) 2005 The Dialog Corp. All rts. reserv.
00038167
RAYTHEON NETS \$73 MILLION FOR U.S., DUTCH, EGYPTIAN **MISSILE** UPGRADES By
Hunter Keeter
January 6, 1999 OM
WORD COUNT: 447
(c) PHILLIPS PUBLISHING INTERNATIONAL All Rts. Reserv.
COMPANY NAMES (DIALOG GENERATED): Raytheon

54/3,K/1 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.
01336176 SUPPLIER NUMBER: 02005005
Target seeker for antiarmor **missile tested**. (illustration)
Aviation Week & Space Technology, v115, p52(1)
Aug 3, 1981
CODEN: AWSTA DOCUMENT TYPE: illustration ISSN: 0005-2175
LANGUAGE: ENGLISH RECORD TYPE: CITATION

54/3,K/7 (Item 7 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.
03312919 SUPPLIER NUMBER: 06106040 (USE FORMAT 7 OR 9 FOR FULL TEXT)
McDonnell Douglas **tests** two AIM-9 Sidewinder **missiles**.
PR Newswire, 121LA24
Dec 1, 1987
LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
WORD COUNT: 548 LINE COUNT: 00043

54/3,K/8 (Item 8 from file: 80)
DIALOG(R)File 80:TGG Aerospace/Def.Mkts(R)
(c) 2005 The Gale Group. All rts. reserv.
01140062 Supplier Number: 40239013
Successful firing of Sidewinder from Apache
Jane's Defence Weekly, v8, n24, p1407
Dec 19, 1987
Language: English Record Type: Abstract
Document Type: Magazine/Journal; Trade

Serial 09/700316

January 25, 2005

ABSTRACT:

Two AIM-9 Sidewinder **missiles** were successfully fired from an A-64A Apache attack helicopter in **tests** conducted at US White Sands **Missile** Range. The **tests** are designed to evaluate the **air-to-air** combat capabilities of the Apache deploying various **weapons**. The Sidewinder **tests** examined **missile** separation and **target seeking /weapons control** compatibility...

54/3,K/9 (Item 9 from file: 160)
DIALOG(R)File 160:Gale Group PROMT(R)
(c) 1999 The Gale Group. All rts. reserv.
01841633

Research & development: AH-64 **missile** firing **tests**
Interavia **Air** Letter December 23, 1987 p. 5
ISSN: 0020-5176

McDonnell Douglas (US) has successfully fired 2 AIM-9 Sidewinder **air-to-air missiles** from a AH-64A Apache attack helicopter, as part of programme to determine Apache **air...**

...capabilities. The programme is due to end in 8/88. The objectives of the Sidewinder **test** were to evaluate **missile** separation and the ability of the **missile 's target seeking system** to interface with the AH-64A's **weapons control system**. The programme also includes **tests** of Stinger and Mistral **missiles** .

54/3,K/10 (Item 10 from file: 587)
DIALOG(R)File 587:Jane`s Defense&Aerospace
(c) 2005 Jane`s Information Group. All rts. reserv.
00036239 Word Count:00191

AIM-9 **test**-fired from Apache

JANE'S DEFENCE WEEKLY (JDW) JANUARY 30, 1988 p. 180 v.009 no. 004

...from the US Army and took place at the army's White Sands **missile** range.

Test objectives were to evaluate **missile** separation and how well the **missile 's target - seeking system** interfaces with the AH-64A's **weapon control system**. One of the AIM-9s...

Serial 09/700316

January 25, 2005

File 350:Derwent WPIX 1963-2005/UD,UM &UP=200504

(c) 2005 Thomson Derwent

Set	Items	Description
S1	9928	MISSILE? ? OR WEAPON? ?()SYSTEM? ?
S2	58320	SIMULAT?
S3	3889	GUIDANCE() (SIGNAL? ? OR SYSTEM? ?)
S4	12356	(FEEDBACK OR CONTROL) ()LOOP? ?
S5	122356	(TROUBLE OR CONTROL) () (SIGNAL? ? OR POSITION? ? OR VALUE? ?)
S6	16191	COMMAND() (SIGNAL? ? OR VALUE? ? OR POSITION? ?)
S7	7816	ACTUAL() (SIGNAL? ? OR VALUE? ? OR POSITION? ?)
S8	266	TARGET() SEEK???
S9	438362	TEST???
S10	61563	AIRCRAFT
S11	6265	AIRPLANE? ?
S12	4793	AEROPLANE? ?
S13	111	BOMBER? ? OR FIGHTER() (PLANE? ? OR JET? ?)
S14	846136	AIR
S15	294	S1 AND S2
S16	88	S10:S14 AND S15
S17	14	S3:S7 AND S16
S18	7	S9 AND S17
S19	7	S17 NOT S18
S20	9	S15 AND S8
S21	8	S20 NOT S17
S22	5	S1(1N)S2 AND S10:S14 AND S9
S23	1	S22 NOT (S17 OR S20)

18/26, TI/1

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

015972105

WPI Acc No: 2004-129946/200413

Method for checking of functioning of **air** -dynamic **control** actuator of
guided **missiles** or rockets and device for its realization

18/26, TI/3

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

012867591

WPI Acc No: 2000-039424/200003

Simulation method for **aircraft** **missiles** during **testing** of
aircraft **system**

18/26, TI/5

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

011121118

WPI Acc No: 1997-099043/199709

Missile **guidance** **seeker** and countermeasures **testing** apparatus - has
missile **guidance** **system** and infrared image responsive optical input
system, **simulates** decoy flares from **aircraft** , with beam splitters

accommodating maximum angular motion

18/26, TI/7

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

007570561

WPI Acc No: 1988-204493/198829

Frangible **target** with hydraulic warhead **simulator** - has self-propelled **target** powered by solid fuel rocket motor encased in non-metallic lightweight housing

18/34/2

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

015509105 **Image available**

WPI Acc No: 2003-571252/200354

Aircraft missile simulation apparatus generates **missile** interface response **signals** in response to **control signals** from fire **control system**, for **simulating** release of **missile**

Patent Assignee: RAYTHEON CO (RAYT)

Inventor: CURRY R J; MONK R W; VAN CLEVE D P

Number of Countries: 005 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1306641	A2	20030502	EP 95303601	A	19950526	200354 B
			EP 200278994	A	19950526	

Priority Applications (No Type Date): US 94251067 A 19940531

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 1306641	A2	E	14	F41G-007/00	Div ex application EP 95303601 Div ex patent EP 685700

Designated States (Regional): CH DE FR GB LI

Abstract (Basic): EP 1306641 A2

NOVELTY - A pre-launch module (10) generates **missile** interface response **signals** including a **missile** release **signal** adapter in response to **control signals** from a fire **control system**, for **simulating** release of **missile**. An umbilical cable provides data communication channel for information exchange between the module and the **control system** by coded **signals** for **testing missile** interface.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) a pilot training apparatus; and
- (2) an apparatus for training load crew, ground crew and pilots in loading, **testing** and launching of **missiles**.

USE - For **simulating** pre-launch functions of **aircraft missile system**.

ADVANTAGE - The apparatus is compatible with most types of **aircrafts**.

DESCRIPTION OF DRAWING(S) - The figure shows a block diagram of the **missile simulation** apparatus.

pre-launch module (10)
MIL-STD-1553B circuitry (12)
pp; 14 DwgNo 6/7

Technology Focus:

TECHNOLOGY FOCUS - INDUSTRIAL STANDARDS - The pre-launch module
complies with MIL-STD-1553B standard.

Derwent Class: Q79; W07

International Patent Class (Main): F41G-007/00

18/34/4

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

011280107 **Image available**

WPI Acc No: 1997-258011/199723

Missile launch simulating system for missile launch guidance system from launcher aboard **aircraft** - has microprocessor relay circuitry for emulating acceleration of **missile** after launch from **aircraft** and for emulating cost of **missile** fuel spent

Patent Assignee: US SEC OF NAVY (USNA)

Inventor: HOULBERG C L

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5624264	A	19970429	US 95536309	A	19950929	199723 B

Priority Applications (No Type Date): US 95536309 A 19950929

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5624264	A		51 F41A-033/00	

Abstract (Basic): US 5624264 A

The **simulator** comprises a number of **signal** conditioning circuits device for receiving power and **control signals** from the **aircraft** on board launcher, which condition the power and **control signals** to provide digital **signals** indicative of the presence or absence of the power and **control signals** , processing device coupled to the number of **signal** conditioning circuit device for receiving and processing the digital **signals** from the **signal** conditioning circuit device, processing device, responsive to the processing of the digital **signals** to generate a number of relay energizing logic **signals**, and relay circuits coupled to the processing device.

Each relay circuit receives one of the relay energising logic **signals** and one of the power **signals**, and each relay circuit is energised by an active state of the relay energizing logic **signals** received, or de-energised by inactive state of the relay energizing logic **signals** received. At least some of the relay circuits are energized during a **simulated** launch of the **missile** to allow the power **signals** to pass through the relay circuits energized to the **missile** to provide power to the **missile** after the **simulated** launch. The remainder of the relay circuits are de-energized during **simulated** launch of the **missile** .

ADVANTAGE - Provides economic means of **testing missile** launch sequence from **aircraft** without **actual** live fire of **missile** from **aircraft** , emulates functions of **missile** 's on board turbo generator

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by using microprocessor **controlled** relays to provide phase gyro drive **signals** to **missile** gyro during launch when umbilical cord opens, and provides high voltage power to **missile** 's on board electronics after launch using microprocessor **controlled** relays and **missile** launcher filament power to emulate turbo generator's high voltage power **signal**.

Dwg.1/15

Derwent Class: Q79; T01; W07

International Patent Class (Main): F41A-033/00

18/34/6

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

010515536 **Image available**

WPI Acc No: 1996-012487/199602

Missile simulator appts. for pilot training of **aircraft** - includes pre-launch module, inert **missile** body providing static and aerodynamic loads equivalent to **actual missile**, and data link and capture module for recording data transactions for post-flight analysis of **aircraft** and pilot performance

Patent Assignee: HUGHES **AIRCRAFT** CO (HUGA); RAYTHEON CO (RAYT); HUGHES ELECTRONICS (HUGA)

Inventor: CURRY R J; MONK R W; VAN CLEVE D P; VANCLEVE D P

Number of Countries: 010 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 685700	A1	19951206	EP 95303601	A	19950526	199602 B
NO 9502108	A	19951201	NO 952108	A	19950529	199605
CA 2150042	A	19951201	CA 2150042	A	19950524	199613
JP 8054197	A	19960227	JP 95134438	A	19950531	199618
US 5591031	A	19970107	US 94251067	A	19940531	199708
IL 113887	A	19991222	IL 113887	A	19950528	200008
EP 685700	B1	20030319	EP 95303601	A	19950526	200325
			EP 200278994	A	19950526	
DE 69529941	E	20030424	DE 629941	A	19950526	200335
			EP 95303601	A	19950526	
JP 3488318	B2	20040119	JP 95134438	A	19950531	200410

Priority Applications (No Type Date): US 94251067 A 19940531

Cited Patents: EP 387438; EP 579143; GB 2202061; US 3343486; US 3976009; US 4620484

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 685700 A1 E 14 F41G-007/00

Designated States (Regional): CH DE FR GB LI

NO 9502108 A G09B-009/08

CA 2150042 A G09B-009/08

JP 8054197 A 9 F41A-031/00

US 5591031 A 12 G09B-019/00

IL 113887 A F41A-033/00

EP 685700 B1 E F41G-007/00 Related to application EP 200278994

Designated States (Regional): CH DE FR GB LI

DE 69529941 E F41G-007/00 Based on patent EP 685700

JP 3488318 B2 9 F41A-031/00 Previous Publ. patent JP 8054197

Abstract (Basic): EP 685700 A

The appts. includes a housing. A **simulation device simulates** pre-launch functions of a **missile**. The **simulation device** is disposed within the housing and is operative to generate a response to data communications received from an **aircraft fire control system**. An electronic communication device provides an umbilical interface between the **simulation device** and the **aircraft fire control system**.

The pre-launch functions include weapons identification, built-in-test, and launch cycle responses. The launch cycle response includes the opening of **missile** interlock.

USE - E.g. for pilot training, ground **test** training, load crew training and **missile** interface **testing**.

Dwg.6/7

Abstract (Equivalent): US 5591031 A

A **missile simulator** apparatus for use with an **aircraft** having a **fire control system** adapted to generate a plurality of **control signals** and at least one **missile** station including a **missile** interface, the apparatus comprising:

- a housing releasably attached to the **aircraft**;
- receiving means for receiving said plurality of **control signals** from the **aircraft fire control system**, said receiving means disposed within said housing;

- simulation** means for selectively **simulating** a plurality of **missile** interface response **signals**, said **simulation** means being disposed within said housing and being operative to generate a response to said plurality of **control signals** received from said **aircraft fire control system**; and

- electronic communication means for providing an umbilical interface between said **simulation** means and said **aircraft fire control system**;

whereby the apparatus is operative for **testing** the **missile** interface.

A **missile simulator** apparatus for an **aircraft** having a **fire control system** adapted to generate a plurality of **control signals** including discrete **signals** and at least one **missile** station having a **missile** interface, the apparatus comprising:

- a portable training module operative to generate a response to data communications received from said **fire control system** and including:

- (i) a housing;
 - (ii) receiving means disposed in said housing for receiving said plurality of **control signals** from the **aircraft fire control system**;
 - (iii) a microprocessor disposed in said housing;
 - iv) discrete **signal** conditioning means for filtering said discrete **signals** received from said **fire control system**; and
 - v) **simulation** means for substantially **simulating** a plurality of **missile** interface response functions of a **missile** in response to said plurality of **control signals**, said plurality of **missile** interface functions including a **missile** release function;
- an umbilical interface for providing a data communication channel between said apparatus and said **fire control system** prior to a **simulated** launch of said **missile**;

an inert **missile** body adapted to be mounted to an **aircraft missile** station, said **missile** body having substantially equivalent physical dimensions and creating substantially equivalent static and aerodynamic load characteristics as an equivalent conventional **missile**

, said portable training module being disposed within said **missile** body;
a data link interface for providing a data communication channel between said apparatus and said fire **control system** subsequent to a **simulated** launch of said **missile** ; and
a data link and data capture module for processing and recording data communications between said fire **control system** and said apparatus;
whereby said fire **control system** and said training module interchange information by coded **signals** for **testing** of said **missile** interface.

Dwg.2,6/7

Derwent Class: P85; Q79; W06; W07

International Patent Class (Main): F41A-031/00; F41A-033/00; F41G-007/00;

G09B-009/08; G09B-019/00

International Patent Class (Additional): F41F-003/06; G06F-019/00

19/26/1

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

015889265 **Image available**

WPI Acc No: 2004-047100/200405

Position control simulator for emergency escape seat in **airplane** ,
controls thrust **control** motor **simulator** in seat, such that angular
velocity **command signals** from **position controller** and movement
simulator correspond with each other

19/26/2

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

013049739 **Image available**

WPI Acc No: 2000-221593/200019

Air target simulator

19/26/3

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

011166423 **Image available**

WPI Acc No: 1997-144348/199713

Unmeasurable disturbance force in motor **system** compensation method for
e.g. electric motor in **missile** - actuating motor over range of physical
positions in which disturbance forces occur and ideal motor **simulator**
is adjusted in observer-compensator during movement of motor, disturbance
forces occurring to provide ideal motor **simulator**

19/26/4

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

010294813 **Image available**

WPI Acc No: 1995-196073/199526

Aircraft defence weapon - comprises cylindrical body contg. decoys and
munitions, with propulsion unit and radar jammer

19/26/5

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

008397117 **Image available**

WPI Acc No: 1990-284118/199038

Target for close in weapon **system** - has flight surfaces that together with **target** mass cause **target** to be towed at lower altitude than tow **aircraft**

19/26/6

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

002399402

WPI Acc No: 1980-L5875C/198048

Passive helicopter radar decoy - has rotating blades mounted on tubular body towed by helicopter to **simulate** and provide stronger radar signature than **aircraft**

19/26/7

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

001952604

WPI Acc No: 1978-J1874A/197842

Radar confusing anti- **missile system** - forces low-flying **missiles** into conventional radar detection zone by deploying reflecting layer

21/26/1

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

016384146 **Image available**

WPI Acc No: 2004-542053/200452

Device for automatic ground monitoring of **aircraft air-to-surface guided missile**

21/26/2

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

010129927 **Image available**

WPI Acc No: 1995-031178/199505

Flare mass providing **simulated target** as decoy - incorporates inert component allowing shifting of spectral radiation wavelength to improve **simulation**

21/26/3

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

009489742

WPI Acc No: 1993-183277/199323

Decoy **target simulating aircraft** - has radar reflector and propulsion drive designed to provide enlarged IR plume for deflecting **target seeking missile**

21/26/4

DIALOG(R)File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

008987946 **Image available**

WPI Acc No: 1992-115214/199215

Recognising camouflaged **target** using active search **missile head** - producing **simulated height signal** and comparing with height **signal**

multiplied by constant to counter chaff or window

21/26/5

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

007493186 **Image available**

WPI Acc No: 1988-127119/198819

Test equipment for **seeking** head of intelligent guided **missile** - has
simulator antenna beaming head on rotary table at foci of quasi-optic
imaging **system**

21/26/6

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

007129296

WPI Acc No: 1987-129293/198718

Target seeking radar scene **simulator** for **missile testing** - mixes
control signals with illumination **signal** provided from illumination radar

21/26/7

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

004111744

WPI Acc No: 1984-257285/198442

Positioning decoy-buoys around ship - provides anti-aerial **missile**
protection and involves using submersible torpedo as vehicle for
positioning

21/26/8

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

002365524

WPI Acc No: 1980-H1985C/198033

Target seeker simulator system - uses diplexer for pointing
radiation transmitting antenna carried by drone **missile** at launch site
of friendly object

23/26/1

DIALOG(R) File 350:Derwent WPIX

(c) 2005 Thomson Derwent. All rts. reserv.

007232838

WPI Acc No: 1987-229846/198733

Aerodynamic load **simulator** for **missiles** - has carriage connected to
support frame with hydraulic jack to **simulate** flight loadings